User Guide

WPS870G
Wireless Print Server

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Regulatory, Warranty, and Copyright Information

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. THE UNIT MUST NOT BE EXPOSED TO DRIPPING OR SPLASHING. DO NOT PLACE OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ON THE UNIT.

CAUTION: TO ENSURE REGULATORY COMPLIANCE, USE ONLY THE PROVIDED POWER AND INTERFACE CABLES.

CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION: Exposure to Radio Frequency Radiation. To comply with the FCC RF exposure compliance agreements, the separation distance between the antenna and any person's body (including hands, wrists, feet, and ankles) must be at least 8 inches (20 cm).

This device must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Postpone router installation until there is no risk of thunderstorm or lightning activity in the area.

Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit from the product.

Place this equipment in a location that is close enough to an electrical outlet to accommodate the length of the power cord.

Place this equipment on a stable surface.

When using this device, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Read all of the instructions {listed here and/or in the user manual} before you operate this equipment. Give particular attention to all safety precautions. Retain the instructions for future reference.
- Comply with all warning and caution statements in the instructions. Observe all warning and caution symbols that are affixed to this equipment.
- Comply with all instructions that accompany this equipment.
- **Avoid using this product during an electrical storm.** There may be a risk of electric shock from lightning. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet, and disconnect the cable system. This will prevent damage to the product due to lightning and power surges.
- Operate this product only from the type of power source indicated on the product's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the equipment by local lightning strikes and other electrical surges.

Different types of cord sets may be used for connections to the main supply circuit. Use only a main line cord that complies with all applicable product safety requirements of the country of use.

Installation of this product must be in accordance with national wiring codes.

Place unit to allow for easy access when disconnecting the power cord/adapter of the device from the AC wall outlet.

Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

This product was qualified under test conditions that included the use of the supplied cables between system components. To be in compliance with regulations, the user must use these cables and install them properly. Connect the unit to a grounding type AC wall outlet using the power adapter supplied with the unit.

Do not cover the device, or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.

Installation must at all times conform to local regulations.

FCC Compliance Class B Digital Device

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by Motorola for compliance could void the user's authority to operate the equipment.

FCC Declaration of Conformity

Motorola, Inc., Broadband Communications Sector, 101 Tournament Drive, Horsham, PA 19044, 1-215-323-1000, declares under sole responsibility that the WPS870G complies with 47 CFR Parts 2 and 15 of the FCC Rules as a Class B digital device. This device complies with Part 15 of FCC Rules. Operation of the device is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.

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Section 1: Overview

This chapter provides an overview of your Wireless Print Server's features.

Features

Congratulations on the purchase of your new Wireless Print Server! Your Wireless Print Server (WPS870G) is designed to provide a simple and efficient network printing solution. It is packed with features, including:

- ***Wireless LAN Support.*** Wireless stations supporting the IEEE 802.11g standard (backwards compatible with 802.11b) can interoperate with the Wireless Print Server. Both LAN and WLAN users can print to the attached printer or printers.
- ***Versatility.*** The Wireless Print Server supports up to four protocols: TCP/IP, SMB (Service Message Block), AppleTalk (EtherTalk), and NetBEUI. It features an Ethernet interface port and operating system support including Unix, NetWare (NDPS LPR printing), and Microsoft Windows, as well as a USB 2.0 port (backwards compatible with USB 1.1), and a Parallel port for added flexibility.
- ***Easy Installation.*** The Wireless Print Server makes adding printers to your network simple.
- ***Easy Setup.*** A number of utility programs are supplied to simplify setup. For Windows® 98SE/Windows Me®/Windows 2000/Windows XP™ users, the installation program makes it easy to configure the Wireless Print Server for a variety of network and server configurations.
- ***Web-based Interface.*** The web-based management tool makes it easy to configure the print server from a variety of computer platforms.
- ***Compact Size.*** Allows the Wireless Print Server to be used even where space is limited.
- ***Remote Management Tools.*** A variety of software tools are provided. In most environments, both the Wireless Print Server and attached bi-directional printers can be configured remotely.
- ***Internet Printing Protocol (IPP) Support.*** The Wireless Print Server can act as an IPP Server, allowing clients, suppliers, colleagues and others to print to your printer from anywhere on the Internet. Windows IPP Client software is supplied for Windows 98SE and Windows ME computers. IPP support is built-in to Windows 2000 and Windows XP computers.

Safety Instructions

For your own safety, and to protect your Wireless Print Server, please observe the following safety advice:

- Unplug this device from its power source before cleaning. Use only a slightly dampened cloth for cleaning. Do not use liquid or aerosol cleaners.
- Avoid using this device near water. Exposure to water poses an electric-shock hazard.
- Do not place the Wireless Print Server on an unstable surface. The device may fall causing serious damage to the device.
- This device should only be used with the power supply type specified on the product label.
- Do not pinch, crimp or otherwise damage the power cord. If exposed to foot traffic, ensure that the cable is properly shielded and does not pose a tripping hazard.
- If using an extension cord, make sure the total current rating of the products using the cord does not exceed the extension cord's current rating.
- Do not attempt to service this device, as opening or removing casing may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
- The Wireless Print Server should be serviced by qualified service personnel under the following conditions:
  - The power cord is damaged or frayed.
  - Liquid has been spilled onto the device.
  - The device has been exposed to rain or water.
  - The device does not operate normally in accordance with the operating instructions.
  - The casing has been damaged.

Package Contents

You should find the following items packaged with your Wireless Print Server. If any items are missing, contact your dealer immediately.

- The Wireless Print Server
- Power Adapter
- CD-ROM containing all support programs and this manual
- Quick Start Guide
- Ethernet Cable

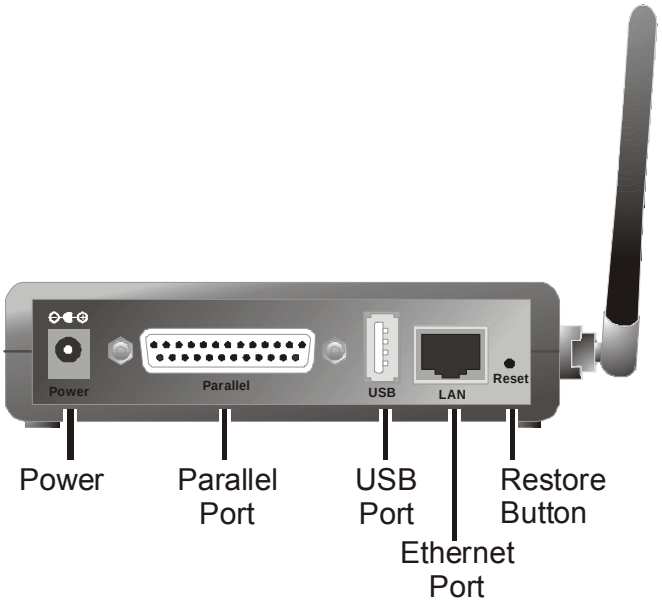
WPS870G Physical Description

The following sections describe the physical characteristics of your WPS870G.

For instructions on installing your WPS870G, see Section 2:Installation.

Back of WPS870G

The following illustration shows the back panel:

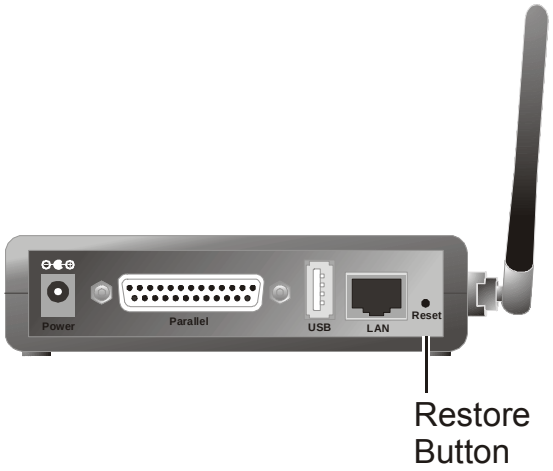


Feature	Description
Power	The receptacle where you plug in the power adapter.
Parallel Port	Use a parallel cable to connect to a printer with this port.
USB Port	Use a USB cable to connect to a printer with this port.
Ethernet Port	Use an Ethernet cable to connect to a router or computer.
Restore Button	Prints a test page or restores the WPS870G to the default login settings. See Test Print and Restore Button for further information.

Test Print and Restore Button

The Wireless Print Server is fitted with a Restore button. This button has two functions:

- Prints a test page containing all current settings (if your printer supports this)
- Restores the factory default settings



To generate a diagnostic test page:

Note: PostScript printers are unable to print this page. If you have a PostScript printer attached, the test page will not be printed. Use a non-PostScript printer instead. Also, printers that only use GDI printer language cannot print a diagnostic page.

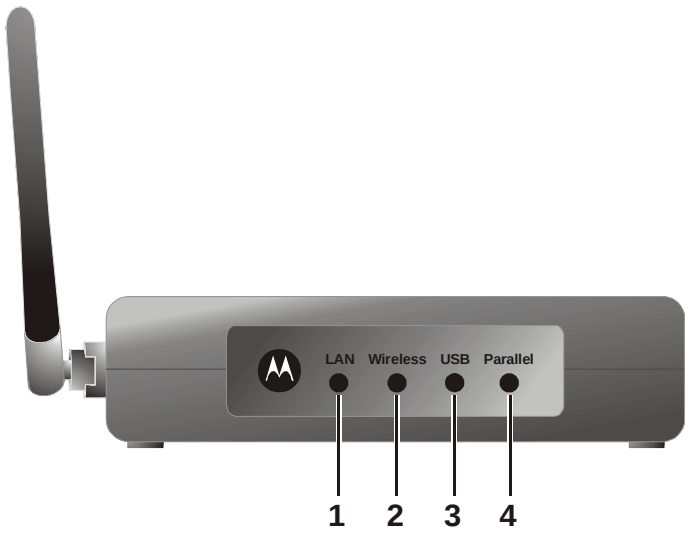
1. Ensure that both the WPS870G and the attached printer are powered.
2. Press and release the Restore button. A test page prints containing the current settings.

To restore the factory default settings:

1. Press and hold the Restore button for 5 seconds.
2. After 5 seconds the WPS870G returns to its factory default settings:
   - Returns the login password to its factory default value of “motorola”
   - Sets the IP address assignment to dynamic (use DHCP server)
   - Obtains an IP address

Front of WPS870G

The following illustration shows the front panel:



LED Indicators

There are four LED indicators on the front of the unit. The LED indicator modes are described in the following table.

LED	Color	Condition	Status
1. LAN	None	Off	No Ethernet link or power is unplugged
	Green	Solid On	There is a live Ethernet link
	Green	Blinking	Traffic is occurring on Ethernet link
	Orange	Blinking	Collision of data on Ethernet link
2. Wireless	None	Off	Wireless link unavailable
	Green	Solid On	Wireless port associated with an Access Point
	Green	Blinking	Wireless connection associated and data is being sent/received
3. USB	None	Off	No printer connected
	Green	Solid On	Printer is connected
	Green	Blinking	Sending data
	Orange	Solid On	Printer problem or connection problem
	Orange	Blinking	Firmware upgrade in process in conjunction with Parallel LED

LED	Color	Condition	Status
4. Parallel	None	Off	No printer connected
	Green	Solid On	Printer is connected
	Green	Blinking	Sending data
	Orange	Solid On	Printer problem or connection problem
	Orange	Blinking	Firmware upgrade in process in conjunction with USB LED
All 4 LEDs	Orange	Solid On	Device failed to initialize

Section 2: Installation

Overview

The WPS870G is designed to support many different platforms and the configuration required depends upon the environment in which it is installed:

- The Wireless Print Server requires some configuration but is mostly plug-and-play if there is a DHCP server on your network. A Windows-based setup Wizard provided on the CD-ROM simplifies this task.
- Computers using the WPS870G require configuration.
- If you intend to use the WPS870G in conjunction with a network server running Windows 2000 / Windows XP, the network server must be configured as detailed in Windows with Server-based Print Queues. However, it is not necessary to use a network server-based queue; client computers can print directly to the Wireless Print Server using the Print Server utility. This is the most common method.

The following list provides an overview of what you need to get your WPS870G up and running:

1. If not already installed, install the printer driver for a printer you intend to use.
2. Decide how you want the WPS870G to acquire an IP address – see Before You Begin, a Choice for more information.
3. Collect your wireless network information: SSID and wireless security settings.
4. Connect the WPS870G to either a router or a computer. If connecting to a computer, you must use a crossover cable.
5. Insert the CD-ROM for device setup. The CD-ROM guides you through a series of installation prompts.
6. Connect your printer(s) to the WPS870G.

The following sections provide detailed instructions for completing these tasks.

Before You Begin, a Choice

You need to designate the way in which the WPS870G obtains an IP address.

IP Assignment

The WPS870G requires an IP address for use on your wireless LAN network. How it acquires that IP address is up to you. You can designate a static address or use a router with a DHCP server to assign a dynamic IP address for you.

- A statically assigned address means that the IP address will never change, even if you power off and on the unit. You must manually assign an unused IP address that works with your wireless network.

- A dynamically assigned IP address might change, which means you might have to alter the Print Port if you manually set up TCP/IP printing and if you power off and on the WPS870G. The Print Server utility, however, will handle the IP assignment from a DHCP server for you.

The method you choose depends on what you have available and how you want to work with the WPS870G. If you already have a wireless router, then the DHCP/dynamic IP address option is the easiest since it does not require any additional set up time, especially if used in conjunction with the Print Server utility. The Installation Wizard on the CD-ROM supports either method.

Choosing a Static IP Address

The following two sections provide assistance in determining an IP address to use on your network. These instructions are not necessary when using a dynamically assigned IP address.

Subnet Mask/Gateway Address Discovery

If you select static IP assignment, you need to identify your Subnet Mask and Gateway IP address of your wireless network. Use the following procedure:

1 Open a command prompt by clicking **Start** and **Run**.

2 For Windows 98SE and ME, in the Open field, type **command** and press **Enter** or **OK**. For Windows 2000 and XP, type **cmd**.

Or, navigate using your **Start** button to **Programs**>**Accessories**>**Command Prompt**.

3 In the Command window, type **ipconfig**. You should see something similar to the following example for your network adapter:

```
Ethernet Adapter Local Area Connection:

Connection-specific DNS Suffix.: Example.example.example.com.

IP Address. . . . . . . . . . . . : 192.168.10.10

Subnet Mask . . . . . . . . . . . : 255.255.255.0

Default Gateway . . . . . . . . . : 192.168.10.1
```

4 From this window you are able to determine your Subnet Mask and Gateway IP address (circled in blue above). The IP address shown is assigned to your Ethernet adapter, but it does help to indicate what IP address you could assign.

Inferring an IP Address

Using the example above, 192.168.10.10 is the IP address assigned to your Ethernet adapter. This tells you that you should assign an IP address beginning with 192.168.10.*x*. The last number, possibly 11 in this case, could be free.

1 Use the **ping** command (just like using *ipconfig* – see above) to verify if the address is free, type **ping 192.168.10.11**.

2 If you do not see the word "reply," then most likely the IP address is free.

For the following reasons, the above instruction might not work:

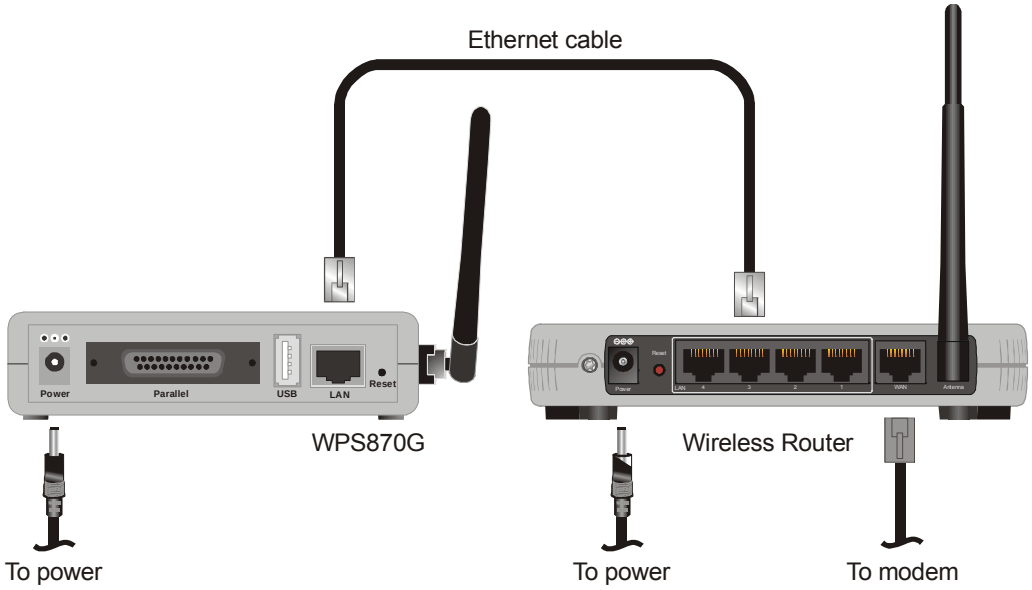
- *You may have two network adapters installed in the computer, so you need to know which one is being used for the wireless network.*
- *You statically assigned your Ethernet adapter's IP address and it is not the same as the router's network. In this case, access your router to discover the information. Refer to your router's documentation for further details.*

Hardware Setup

If you chose to dynamically assign an IP address to your WPS870G, follow the Wireless Router connection procedure. If you chose static IP assignment, either hardware connection procedure can work.

Wireless Router to WPS870G Connection

If you decided to dynamically assign an IP address, use this procedure for connecting your hardware:



1 Using an Ethernet cable, take one end and plug it into one of the LAN Ethernet ports (not WAN) on the back of your router.

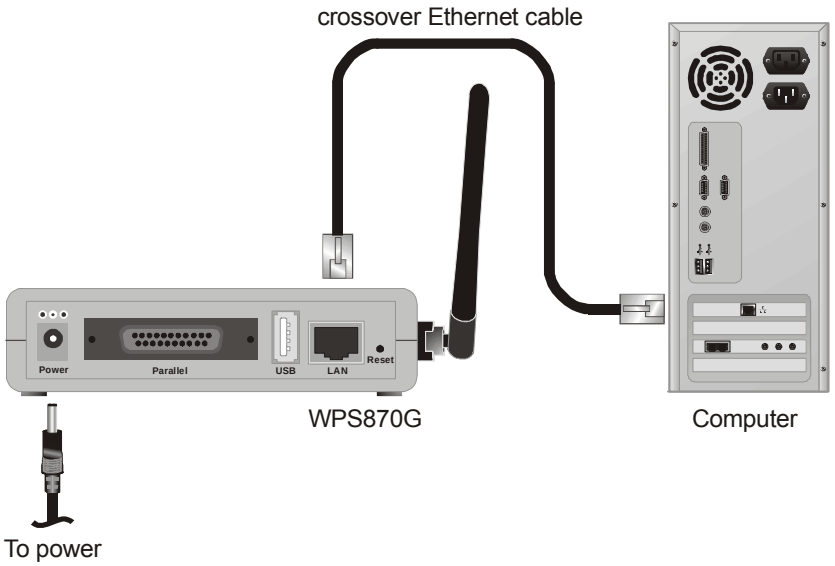
2 With the other end of the same Ethernet cable, plug it into the LAN port of your WPS870G.

3 Plug in the power plug to the WPS870G and the other end into an electric outlet. The LAN LED illuminates when successfully connected.

Computer to WPS870G Connection

If you are connecting the WPS870G directly to your computer, that computer must first be equipped with an Ethernet adapter card. Use a crossover Ethernet cable for this procedure; a crossover cable is **not** supplied.

To connect the WPS870G to your computer:



1 Using the crossover Ethernet cable, take one end and plug it into the LAN Ethernet port on the back of your computer. If you already have an Ethernet cable plugged into the port, you can temporarily remove it for this procedure. Remember to replace the cable after this set up is completed.

2 Plug the other end of the same crossover Ethernet cable into the LAN port of your WPS870G.

3 Plug in the power plug to the WPS870G and the other end into an electric outlet. The LAN LED illuminates when successfully connected.

Installation Wizard Setup Procedure

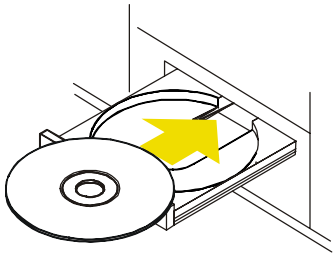
The Windows-based Installation Wizard supplied on the CD-ROM, runs on Windows 98SE, Windows ME, Windows 2000, and Windows XP. Using this Installation Wizard is the recommended method to configure the Print Server.

Installation Notes

- The screenshots seen here may differ slightly, depending upon your version of the Installation Wizard. However, the functionality is the same.
- If using Windows XP, you may have to temporarily disable your built-in firewall so that the Installation Wizard can operate successfully. Follow the directions here: http://www.microsoft.com/windowsxp/home/using/howto/homenet/icf.asp

To configure your WPS870G using the supplied CD-ROM:

1 Insert the CD-ROM in your computer's CD-ROM drive. The set up wizard starts automatically.[1]



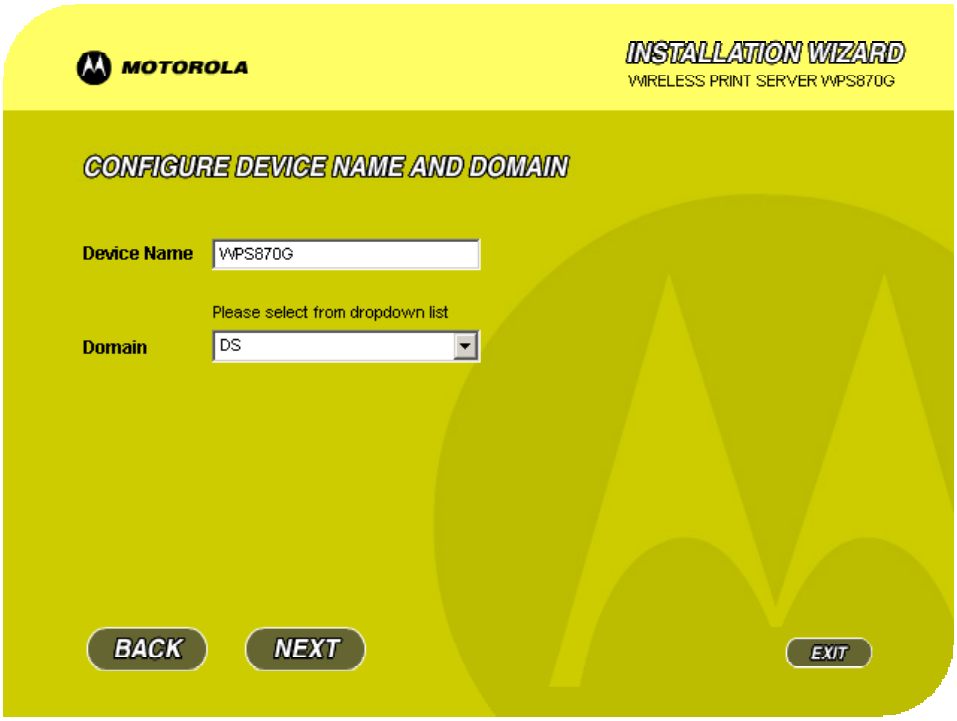
2 Click **Install and Configure the Wireless Print Server**.

3 The Connect your Print Server to Your Router window is displayed. Follow the instructions and click **Next**.

4 When asked for a password, type 'motorola'.

[1] Note: If the Windows set up wizard does not start automatically, do the following: Click **Start**, then **Run**. On the next screen, click **Browse** and locate your CD-ROM drive. Locate **SetupWizard.exe** and highlight it. Click **Open**, then **OK**. The set up wizard starts.

The Configure Device Name and Domain window is displayed:



5 Type a ***descriptive name*** for the Device Name.

6 Select the ***Domain*** on which you wish to use the WPS870G. The domain displayed is the domain currently in use. Most likely WORKGROUP is fine if using a domain.

7 Click **Next** when finished.

The Configure IP Address Settings window is displayed:

MOTOROLA
INSTALLATION WIZARD
WIRELESS PRINT SERVER WPS870G
CONFIGURE IP ADDRESS SETTINGS
Obtain IP Address Automatically
(Requires DHCP server on the network, IP address of print server could change)
Static Assigned IP Address
(Use a static assigned IP address to insure the IP address of your print server remains the same)
IP Address
192 . 168 . 10 . 12
Subnet Mask
255 . 255 . 255 . 0
Gateway IP Address
192 . 168 . 10 . 1
BACK
NEXT
EXIT

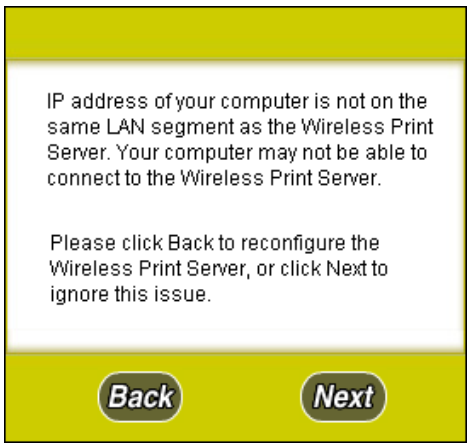
8 Select the ***type of connection*** you chose at Before You Begin, a Choice:

- Obtain IP Address Automatically – using a wireless router with a DHCP server
- Static Assigned IP Address – manually assigned IP address

9 If you selected Static Assigned IP Address, enter an ***unused IP address*** from the range used on your LAN. Also enter the appropriate ***Subnet Mask*** and ***Gateway IP Address***. Refer to IP Assignment if you require assistance on determining the information.

10 Click **Next**.

Disregard the following instruction and go to Step 12, *unless* you selected *Static Assigned IP Address*. The following warning might appear:

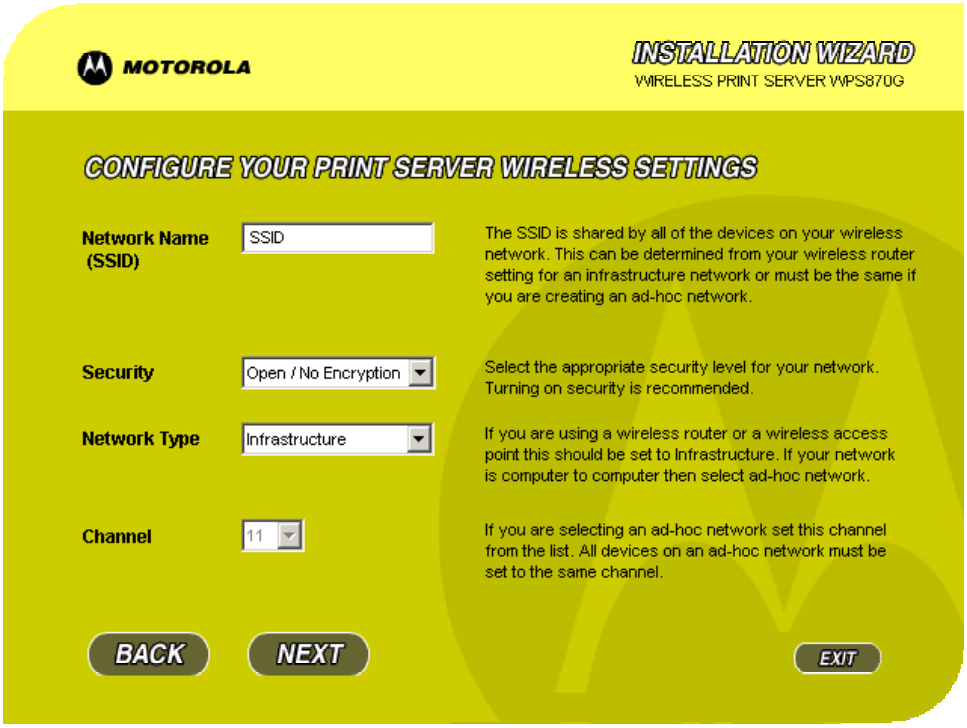

IP address of your computer is not on the same LAN segment as the Wireless Print Server. Your computer may not be able to connect to the Wireless Print Server.
Please click Back to reconfigure the Wireless Print Server, or click Next to ignore this issue.
Back
Next

11 Confirm that the information you entered is correct by clicking **Back**. If all settings are correct, then click **Next** (from the previous window) and **Next** again. The Set Print Server Password window is displayed.

12 It is recommended that you change the default password of ‘motorola’. Leaving this field blank keeps the default password.

13 Click **Next**.

The Configure Your Print Server Wireless Settings window is displayed:


MOTOROLA
INSTALLATION WIZARD
WIRELESS PRINT SERVER WPS870G
CONFIGURE YOUR PRINT SERVER WIRELESS SETTINGS
Network Name (SSID)
SSID
The SSID is shared by all of the devices on your wireless network. This can be determined from your wireless router setting for an infrastructure network or must be the same if you are creating an ad-hoc network.
Security
Open / No Encryption
Select the appropriate security level for your network. Turning on security is recommended.
Network Type
Infrastructure
If you are using a wireless router or a wireless access point this should be set to Infrastructure. If your network is computer to computer then select ad-hoc network.
Channel
11
If you are selecting an ad-hoc network set this channel from the list. All devices on an ad-hoc network must be set to the same channel.
BACK
NEXT
EXIT

14 Enter or select the information required.

Item	Description
Network Name (SSID)	Enter the name used by your wireless network. All devices must share this name.
Security	Match the type of security (wireless encryption and authentication) used by your wireless network. See **Step 11** for information on configuring wireless security.
Network Type	Select either Infrastructure or Ad-Hoc. If using a wireless router or wireless access point, select Infrastructure. If your network is strictly computer-to-computer, select Ad-Hoc.

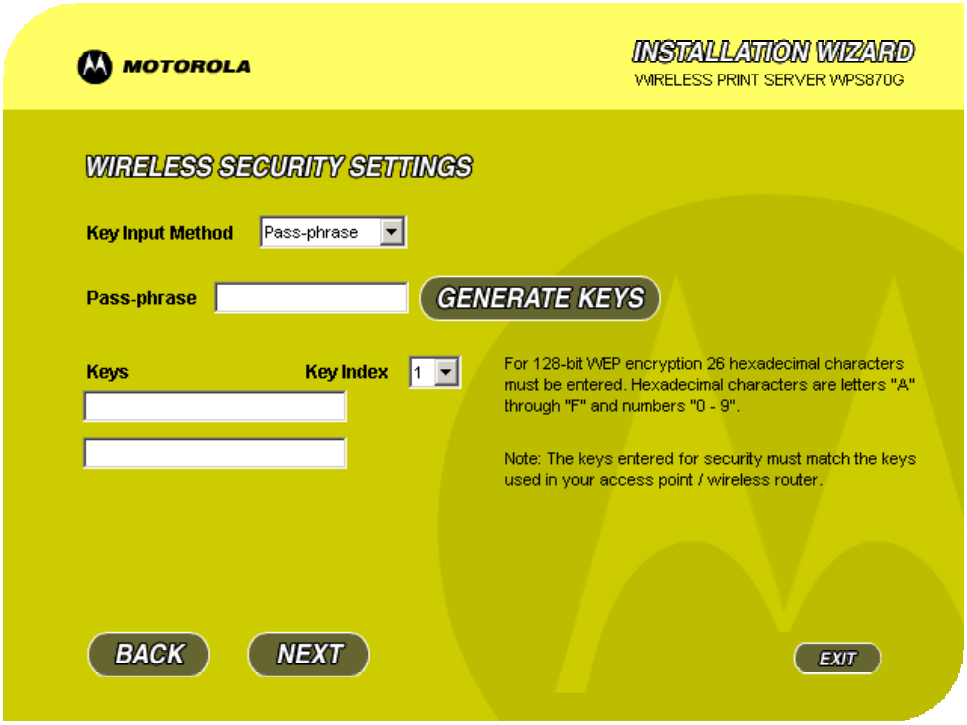
Item	Description
Channel	If you selected Ad-Hoc network, then select the wireless channel of that network.

15 Once the information is entered, click **Next**. The Confirm Print Settings Window is displayed for your review.

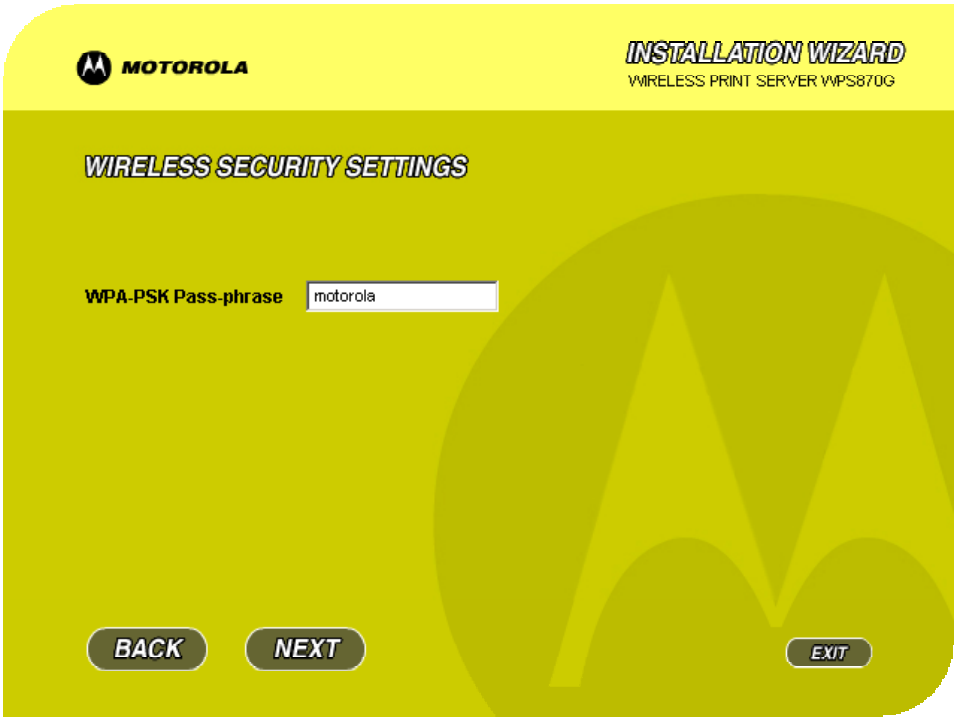
16 If necessary, click **Back** to revise any settings. If everything is correct, click **Accept**.

17 If you did not select any wireless security (Open/No Encryption), skip to step 19.

– If you selected any wireless security other than WPA-PSK, the Wireless Security Settings window is displayed:


MOTOROLA
INSTALLATION WIZARD
WIRELESS PRINT SERVER WPS870G
WIRELESS SECURITY SETTINGS
Key Input Method
Pass-phrase
Pass-phrase
GENERATE KEYS
Keys
Key Index
1
For 128-bit WEP encryption 26 hexadecimal characters must be entered. Hexadecimal characters are letters "A" through "F" and numbers "0 - 9".
Note: The keys entered for security must match the keys used in your access point / wireless router.
BACK
NEXT
EXIT

– If you selected WPA-PSK, the Wireless Security Settings window is displayed:



18 Match the type of security used by the wireless network.

– For WEP security, if you select Pass-phrase as your Key Input Method, enter the pass-phrase and click **Generate Keys**.

– For WPA-PSK, type in the required pass-phrase.

Once entered, click **Next** and confirm the settings.

19 Once all settings are acceptable, click **Accept**. The Print Server Configuration Complete! window is displayed.

If want to connect to the WPS870G using Ethernet, click **Next**.

If you want to connect wirelessly to your WPS870G, follow these instructions:

– Connect the printer to the appropriate port on the WPS870G. Parallel port cables should be less than 9.8 feet (3 meters) long.

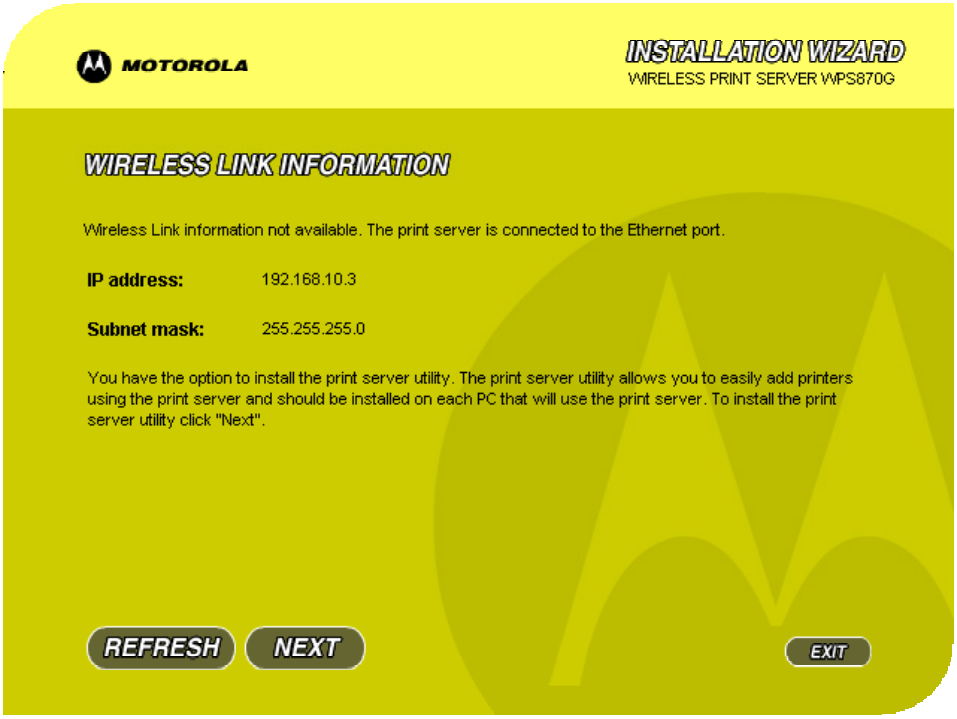
– To wirelessly connect the WPS870G to your wireless network, unplug the power cable from the WPS870G.

– Unplug the Ethernet cable from the WPS870G.

– Unplug the other end Ethernet cable from the wireless router.

– Plug the power cable back in to the WPS870G. The WPS870G wirelessly associates with your wireless router and the Wireless LED illuminates.

If you set up your WPS870G by directly connecting to a computer and not through a router, you might encounter this window.


MOTOROLA
INSTALLATION WIZARD
WIRELESS PRINT SERVER WPS870G
WIRELESS LINK INFORMATION
Wireless Link information not available. The print server is connected to the Ethernet port.
IP address: 192.168.10.3
Subnet mask: 255.255.255.0
You have the option to install the print server utility. The print server utility allows you to easily add printers using the print server and should be installed on each PC that will use the print server. To install the print server utility click "Next".
REFRESH
NEXT
EXIT

It may be necessary to click **Refresh** more than once to see your wireless information. You also can try re-powering your WPS870G and then clicking **Refresh** again.

Your WPS870G has been successfully configured and will work with your wireless adapter. Continue following the instructions to install the Wireless Print Server Utility.

Wireless Print Server Utility Installation

Refer to the Operating System listed below for details on how to install the Print Server Utility.

- WPS870G Utility Install for Windows 98SE/Windows ME
- WPS870G Utility Install for Windows 2000
- WPS870G Utility Install for Windows XP

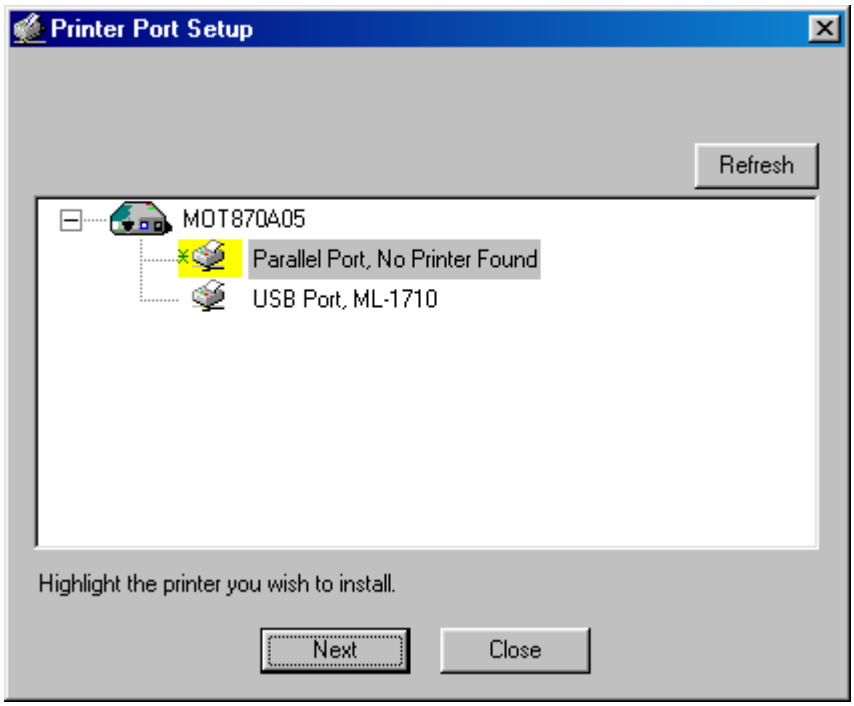
WPS870G Utility Install for Windows 98SE/Windows ME

It is highly recommended that you install the Print Server utility on every client computer that accesses the WPS870G. The next sequence installs the Print Server utility for Windows 98SE/ME.

1 Choose one of the following:

- Continue with the Installation Wizard to install the Print Server utility by clicking **Next**.
- Or, if installing for the first time, insert the CD-ROM and from the main window of the Installation Wizard, click **Install the Wireless Print Server Utility**.
- Or, if you have installed already and would like to add a new printer port, click **Start** > **Programs** > **Motorola Wireless Print Server Utility** > **Wireless Print Utility Setup**.

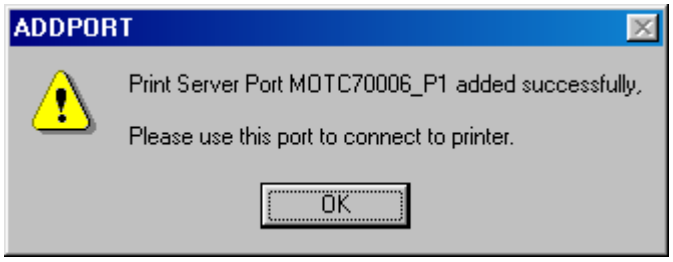
Once complete, the Printer Port Setup window is displayed:



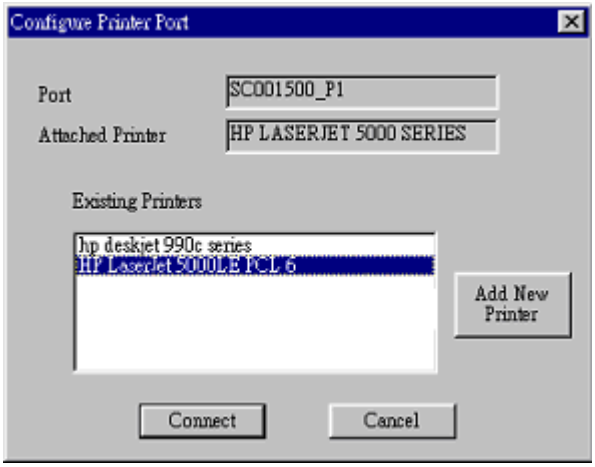
If you see yellow highlighting, that means the Port has already been added in a previous installation. The name of the print server reflects its MAC address.

2 After a brief interval, the Printer Port Setup window displays the printers attached to the WPS870G. Select the ***port*** and ***printer*** you want to install and click **Next**.

The ADDPORT window is displayed, indicating you have successfully added the port.

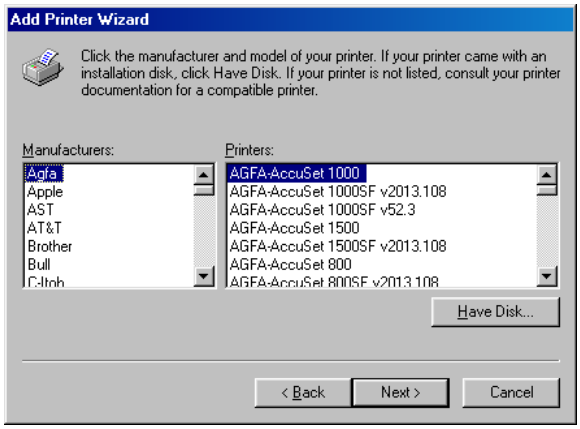


3 Click **OK**. The Configure Printer Port window is displayed:

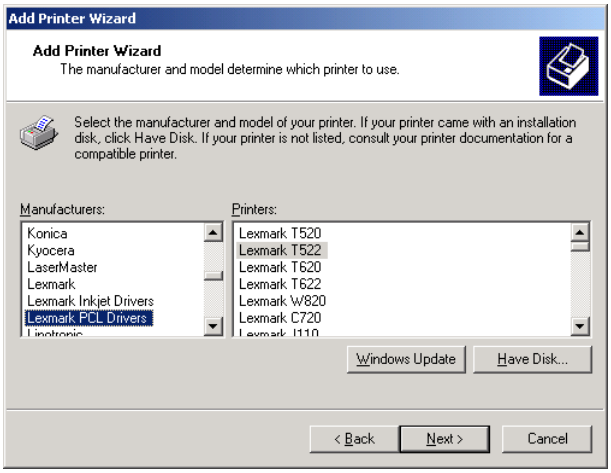


4 If your printer appears in the Existing Printers list, select it and click **Connect**. Otherwise, click **Add New Printer**.

The Add Printer Wizard window is displayed:



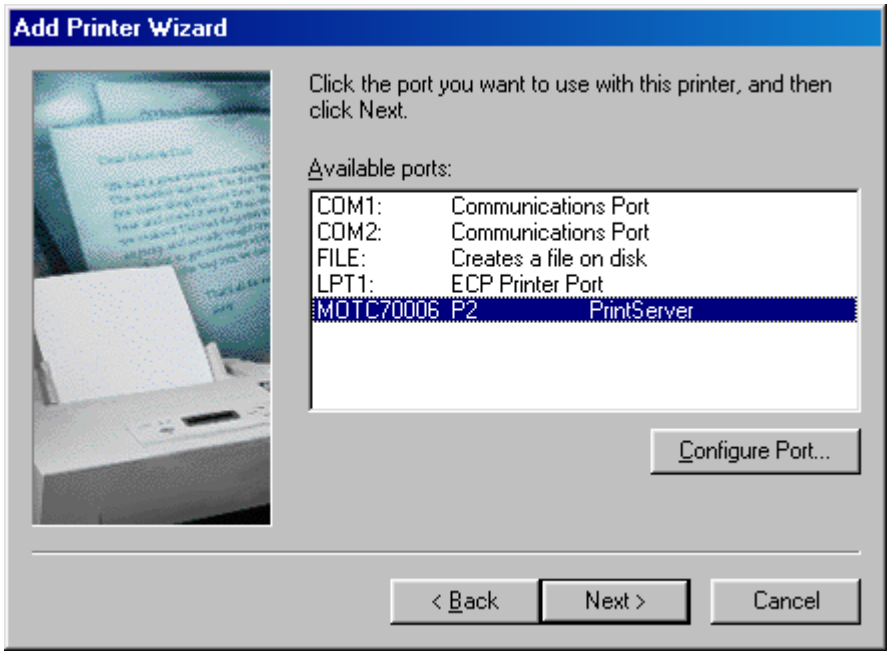
Windows 98



Windows ME

5 Locate the Manufacturer and your printer, or use the Have Disk option if appropriate, and click **Next**.

The Add Printer Wizard window is displayed:


Add Printer Wizard
Click the port you want to use with this printer, and then click Next.
Available ports:
COM1: Communications Port
COM2: Communications Port
FILE: Creates a file on disk
LPT1: ECP Printer Port
MOTC70006_P2 PrintServer
Configure Port...
< Back
Next >
Cancel

6 Select the newly added Port. Look for the description of “PrintServer” because your installation will vary. In the example above, P2 represents the second Port (USB) on the WPS870G. Once selected, click **Next**.

7 Keep or replace the driver as needed and click **Next**. The Name Your Printer window is displayed. Motorola recommends changing the Printer name to indicate that this printer is attached to your Wireless Print Server.

8 Click **Next** and the Printer Sharing window is displayed.

9 Click “Do not share this printer” and click **Next**.

10 Click **Yes** or **No** to print a Test Page and click **Next**.

11 Click **Finish** to complete the Print Utility setup. Your Wireless Print Server is now ready to be used. To print from an application, select the printer you have just configured from the Print dialog box of the application.

12 If the Printer Port Setup window is still open, you can set up another printer or click **Close** to exit the window.

After you have finished the initial installation setup program on the CD-ROM, your WPS870G is up and running and ready for advanced wireless configuration. See Section 3: Wireless Security Configuration for configuring the strongest security settings and Section 4: Web-Based Management for configuring the WPS870G.

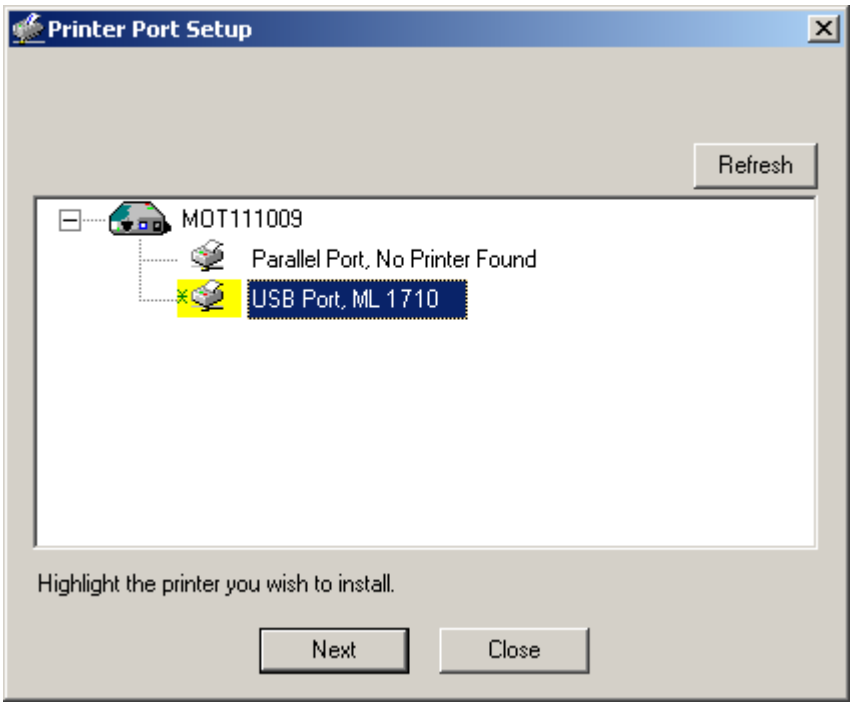
WPS870G Utility Installation for Windows 2000

It is highly recommended that you install the Print Server utility on every client computer that accesses the WPS870G. The following procedure installs the Print Server utility.

1 Choose one of the following:

- Continue with the Installation Wizard to install the Print Server utility by clicking **Next**.
- Or, if installing for the first time, insert the CD-ROM and from the main window of the Installation Wizard, click **Install the Wireless Print Server Utility**.
- Or, if you have installed already and would like to add a new printer port, click **Start** > **Programs** > **Motorola Wireless Print Server Utility** > **Wireless Print Utility Setup**.

Once complete, the Printer Port Setup window is displayed:



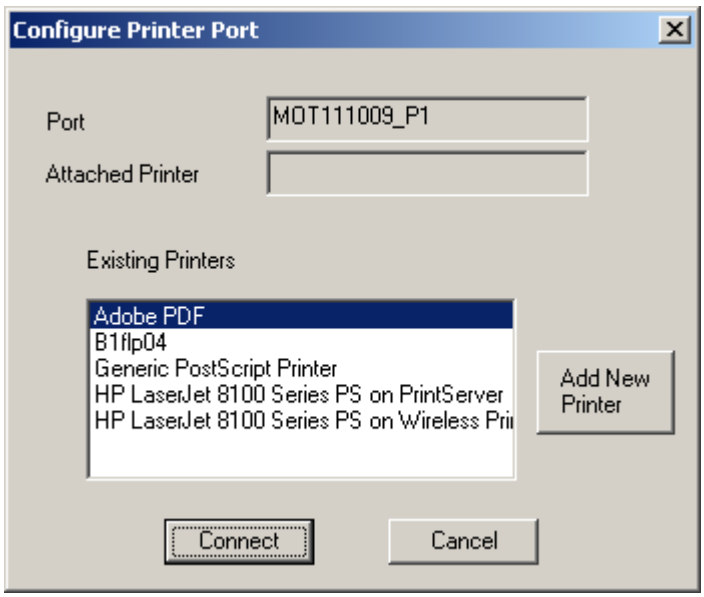
If you see yellow highlighting, that means the Port has been already added in a previous installation. The name of the print server reflects its MAC address.

2 After a brief interval, the Printer Port Setup window displays the printers attached to the WPS870G. Select the ***port*** and ***printer*** you want to install and click **Next**.

The ADDPORT window is displayed, indicating you have successfully added the port.

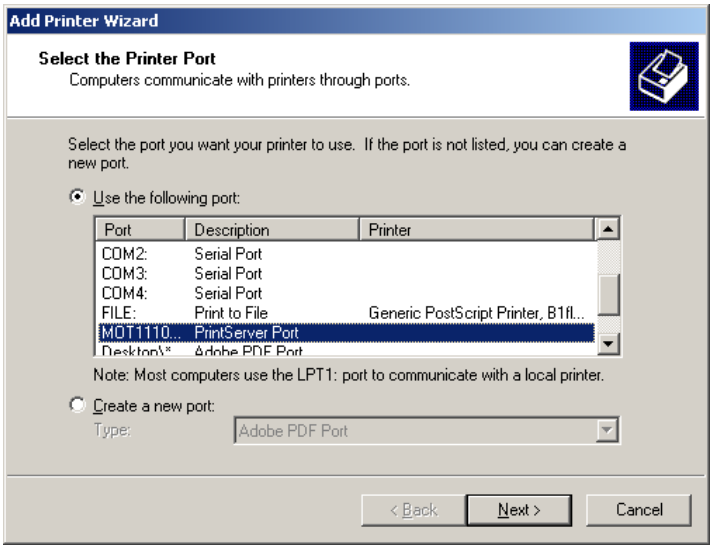
3 Click **OK**.

The Configure Printer Port window is displayed:



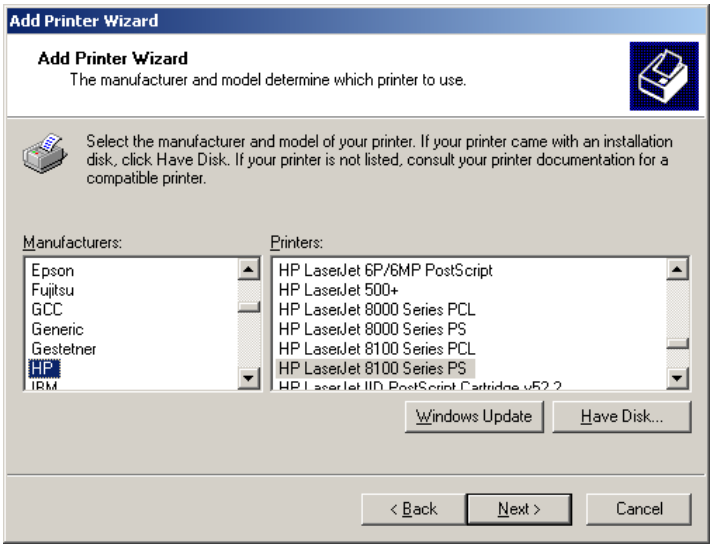
4 If your printer appears in the Existing Printers list, select it and click **Connect**. Otherwise, click **Add New Printer**.

The Select the Printer Port window is displayed:


Add Printer Wizard
Select the Printer Port
Computers communicate with printers through ports.
Select the port you want your printer to use. If the port is not listed, you can create a new port.
Use the following port:
Port
Description
Printer
COM2: Serial Port
COM3: Serial Port
COM4: Serial Port
FILE: Print to File
Generic PostScript Printer, B1fl...
MOT1110... PrintServer Port
Note: Most computers use the LPT1: port to communicate with a local printer.
Create a new port:
Type:
Adobe PDF Port
< Back
Next >
Cancel

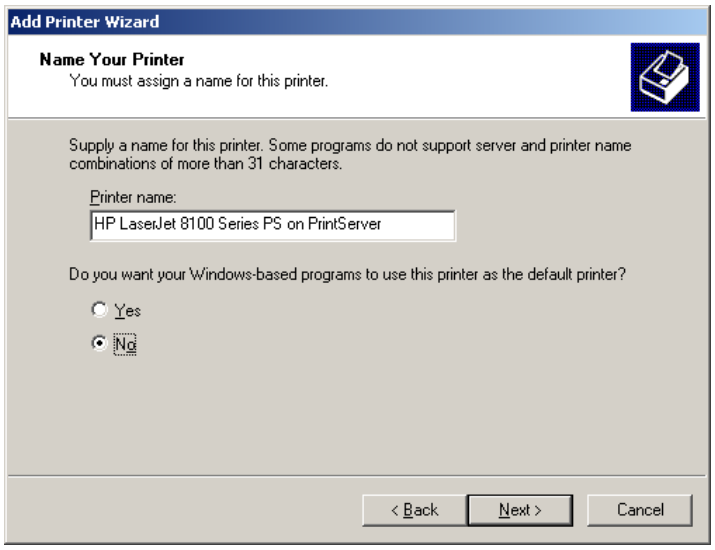
5 Select *Use the following port:* and scroll down until you see *PrintServer Port* in the Description column. Select that port and click **Next**.

The Add Printer Wizard window is displayed:


Add Printer Wizard
Add Printer Wizard
The manufacturer and model determine which printer to use.
Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer.
Manufacturers:
Printers:
Epson
Fujitsu
GCC
Generic
Gestetner
HP
HP LaserJet 6P/6MP PostScript
HP LaserJet 500+
HP LaserJet 8000 Series PCL
HP LaserJet 8000 Series PS
HP LaserJet 8100 Series PCL
HP LaserJet 8100 Series PS
Windows Update
Have Disk...
< Back
Next >
Cancel

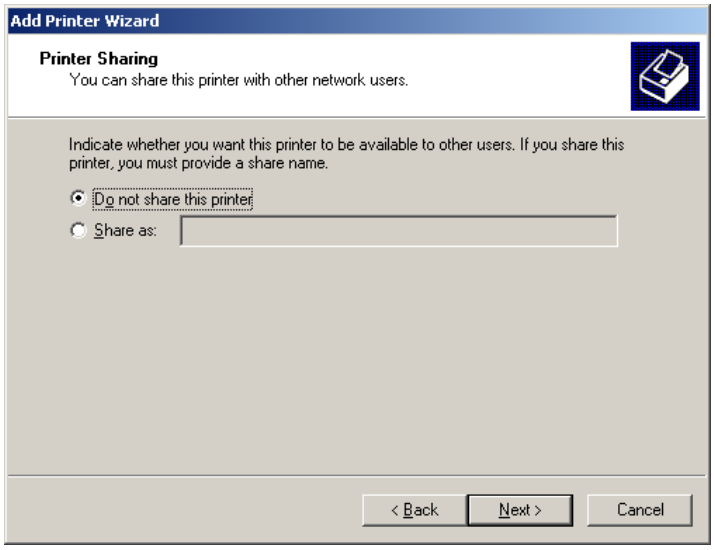
6 Locate the Manufacturer and your printer, or use the Have Disk option if appropriate, and click **Next**.

7 Keep or replace the driver as needed and click **Next**. The Name Your Printer window is displayed:


Add Printer Wizard
Name Your Printer
You must assign a name for this printer.
Supply a name for this printer. Some programs do not support server and printer name combinations of more than 31 characters.
Printer name:
HP LaserJet 8100 Series PS on PrintServer
Do you want your Windows-based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

Motorola recommends changing the Printer name to indicate that this printer is attached to your Wireless Print Server.

8 Click **Next**. The Printer Sharing window is displayed:


Add Printer Wizard
Printer Sharing
You can share this printer with other network users.
Indicate whether you want this printer to be available to other users. If you share this printer, you must provide a share name.
Do not share this printer
Share as:
< Back
Next >
Cancel

9 Click “Do not share this printer” and click **Next**.

10 Click **Yes** or **No** to print a Test Page and click **Next**.

11 Click **Finish** to complete the Print Utility setup. Your Wireless Print Server is now ready to be used. To print from an application, select the printer you have just configured from the Print dialog box of the application.

12 If the Printer Port Setup window is still open, you can set up another printer or click **Close** to exit the window.

After you have finished the initial installation setup program on the CD-ROM, your WPS870G is up and running and ready for advanced wireless configuration. See Section 3: Wireless Security Configuration for configuring the strongest security settings and Section 4: Web-Based Management for configuring the WPS870G.

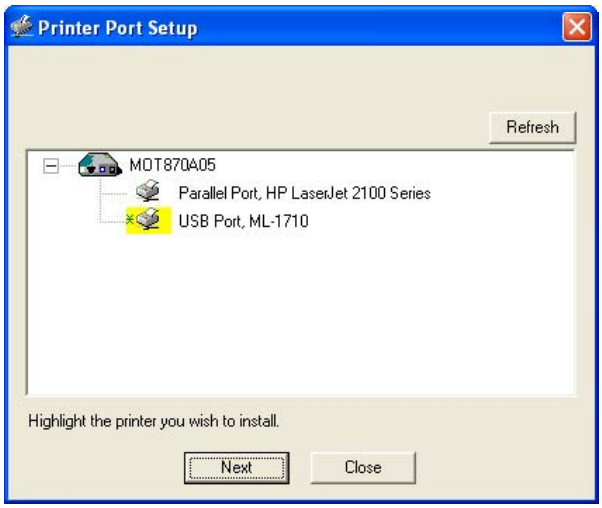
WPS870G Utility Install for Windows XP

It is highly recommended that you install the Print Server utility on every client computer that accesses the WPS870G. The following procedure installs the Print Server utility.

1 Choose one of the following:

- Continue with the Installation Wizard to install the Print Server utility by clicking **Next**.
- Or, if installing for the first time, insert the CD-ROM and from the main window of the Installation Wizard, click **Install the Wireless Print Server Utility**.
- Or, if you have installed already and would like to add a new printer port, click **Start** > **Programs** > **Motorola Wireless Print Server Utility** > **Wireless Print Utility Setup**.

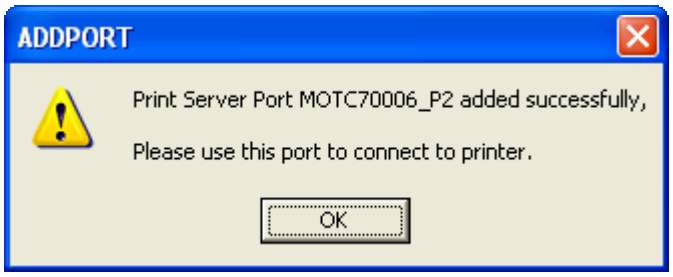
Once complete, the Printer Port Setup window is displayed:



If you see yellow highlighting, that means the Port has been already added in a previous installation. The name of the print server reflects its MAC address.

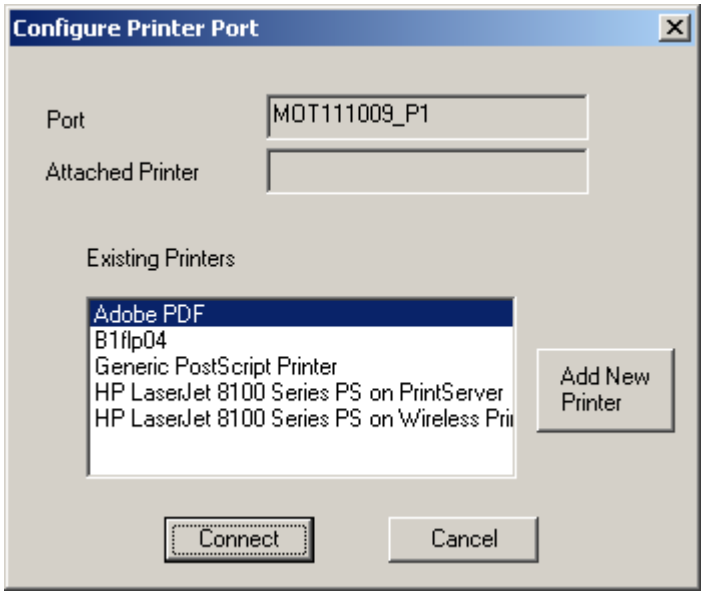
2 After a brief interval passes, the Printer Port Setup window displays the printers attached to the WPS870G. Select the ***port*** and ***printer*** you want to install and click **Next**.

The ADDPORT window is displayed, indicating you have successfully added the port.



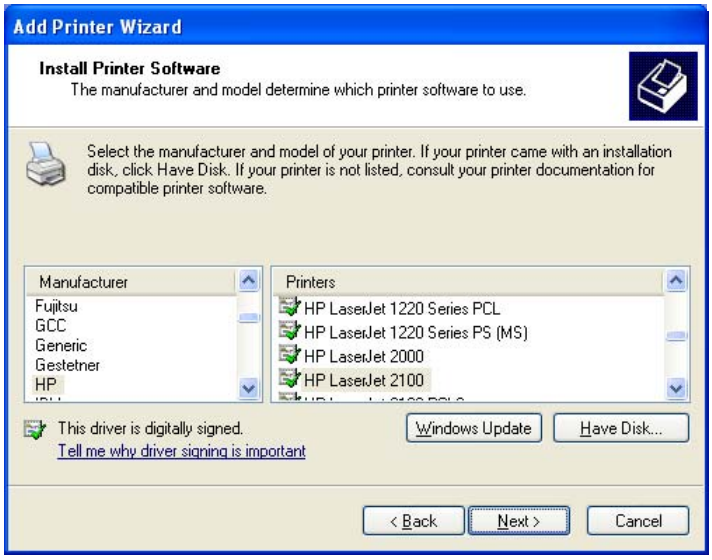
3 Click **OK**.

The Configure Printer Port window is displayed:



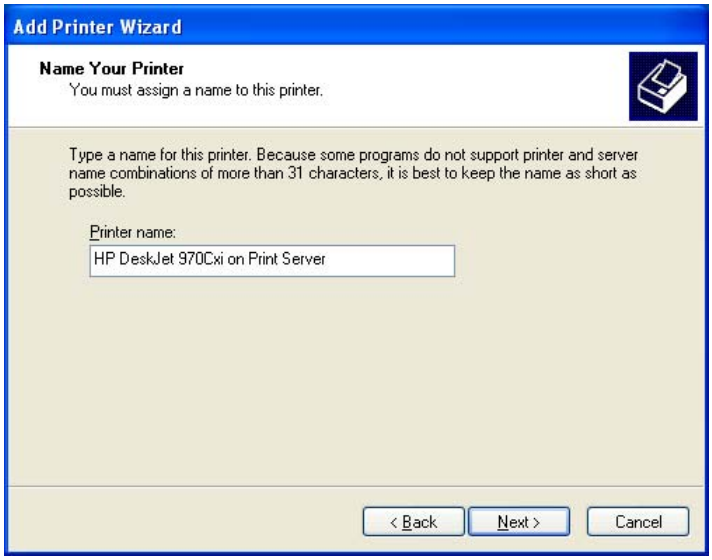
4 If your printer appears in the Existing Printers list, select it and click **Connect**. Otherwise, click **Add New Printer**.

The Add Printer Wizard window is displayed:


Add Printer Wizard
Install Printer Software
The manufacturer and model determine which printer software to use.
Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for compatible printer software.
Manufacturer
Fujitsu
GCC
Generic
Gestetner
HP
Printers
HP LaserJet 1220 Series PCL
HP LaserJet 1220 Series PS (MS)
HP LaserJet 2000
HP LaserJet 2100
This driver is digitally signed.
Tell me why driver signing is important
Windows Update
Have Disk...
< Back
Next >
Cancel

5 Locate the Manufacturer and printer, or use the Have Disk option if appropriate, and click **Next**.

6 Keep or replace the driver as needed and click **Next**. The Name Your Printer window is displayed:

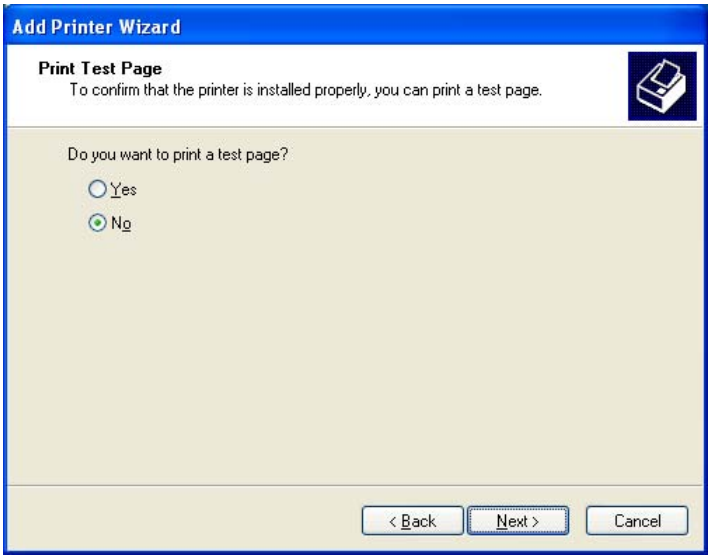

Add Printer Wizard
Name Your Printer
You must assign a name to this printer.
Type a name for this printer. Because some programs do not support printer and server name combinations of more than 31 characters, it is best to keep the name as short as possible.
Printer name:
HP DeskJet 970Cxi on Print Server
< Back
Next >
Cancel

Motorola recommends changing the Printer name to indicate that this printer driver is attached to your Wireless Print Server.

7 Click **Next**. The Printer Sharing window is displayed.

8 Click **Do Not Share This Printer** and click **Next**.

The Print Test Page window is displayed:


Add Printer Wizard
Print Test Page
To confirm that the printer is installed properly, you can print a test page.
Do you want to print a test page?
Yes
No
< Back
Next >
Cancel

9 Click **Yes** or **No** to print a Test Page and click **Next**. The Completing the Add Printer Wizard is displayed.

10 Click **Finish** to complete the Print Utility setup. Your Wireless Print Server is now ready to be used. To print from an application, select the printer you have just configured from the Print dialog box of the application.

11 If the Printer Port Setup window is still open, you can set up another printer or click **Close** to exit the window.

After you have finished the initial installation setup program on the CD-ROM, your WPS870G is up and running and ready for advanced wireless configuration. See Section 3: Wireless Security Configuration for configuring the strongest security settings and Section 4: Web-Based Management for configuring the WPS870G.

Existing Printer Driver Configuration

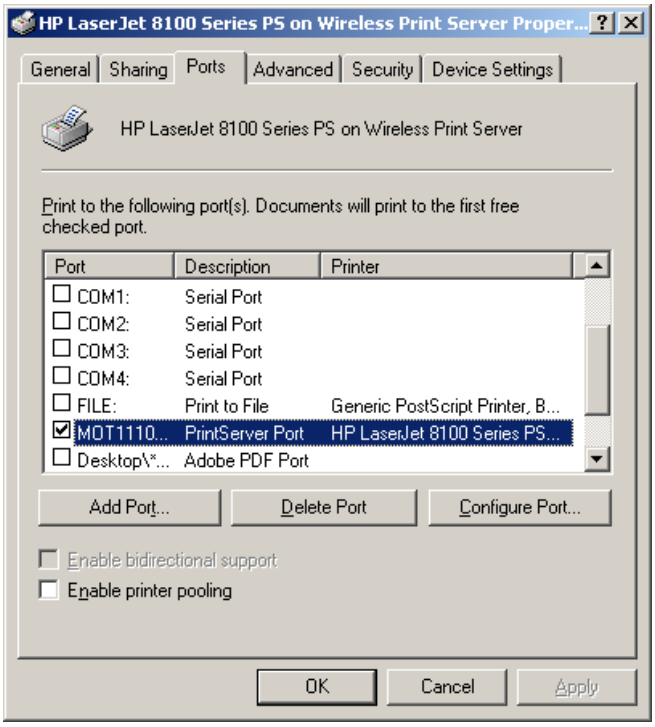
This situation is for a printer you already have installed and want to use with the WPS870G.

Once you have successfully installed the WPS870G, a Printer Port (named PrintServer) for the WPS870G has been created on your computer. You can use this Printer Port for existing printers already installed on your system. By redirecting an existing printer to use the PrintServer port, you can then wirelessly print to your installed printer.

1 Click **Start** > **Settings** > **Printers**.

2 Right-mouse click the desired printer and select **Properties**.

3 Select the **Ports** tab.



4 In the Description column, scroll until you see the desired PrintServer Port and select it.

5 Click **OK**.

Your applications will now print to the selected printer using the WPS870G.

Section 3: Wireless Security Configuration

This section provides a suggested security set up for the WPS870G. You need an installed WPS870G for this procedure.

Overview

Wireless networks require configuration so that wireless devices can talk to one another. But they also require security configuration so that outsiders can't use your wireless network. Failure to configure these settings properly could compromise your network to wireless hackers.

The Installation Wizard guided you through the basic installation process so you should be wirelessly connected to your wireless router. If not, refer to Section 2:Installation to install your unit.

If you have not already configured your wireless network's security to their maximum level (the WPS870G supports WPA-PSK/TKIP), refer to the following instructions to change your password, enable authentication and wireless encryption:

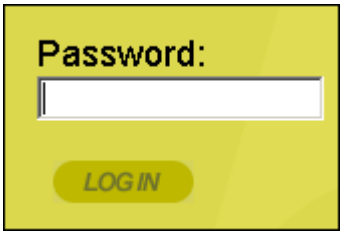
Logging In

Your WPS870G must have received an IP address for you to connect to it.

1 Start your Web browser.

2 In the URL field, type ***http://*** followed by the IP address of the WPS870G, for example: 192.168.10.3. This is the IP address you assigned during the installation. If this is the first time you are logging into the device, it is recommended that you bookmark the address for easy retrieval.

3 Type the ***password***. The default password is "motorola".

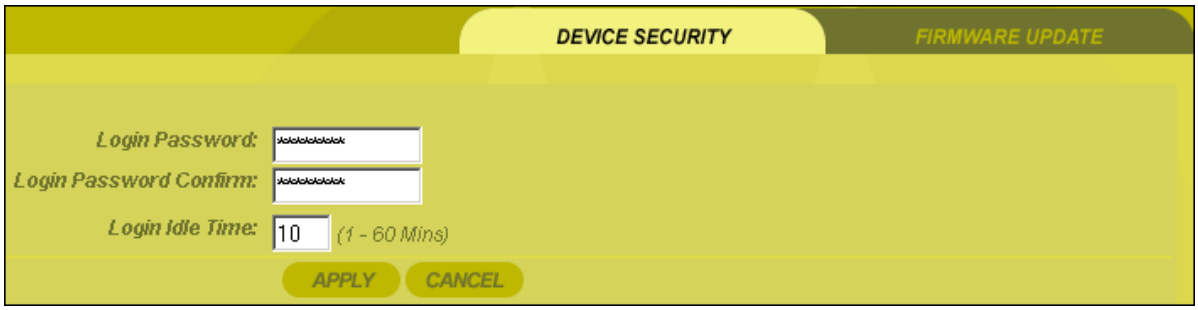


4 Press ENTER or click **LOG IN**. The default login page is displayed.

Wireless Security Setup

The wireless settings configured here represent the strongest settings possible for the WPS870G. If your wireless network does not support them, then match the strongest settings available on the network to which you are connecting.

1 From the main menu, click **Control Panel** to access Device Security. The Device Security window is displayed:



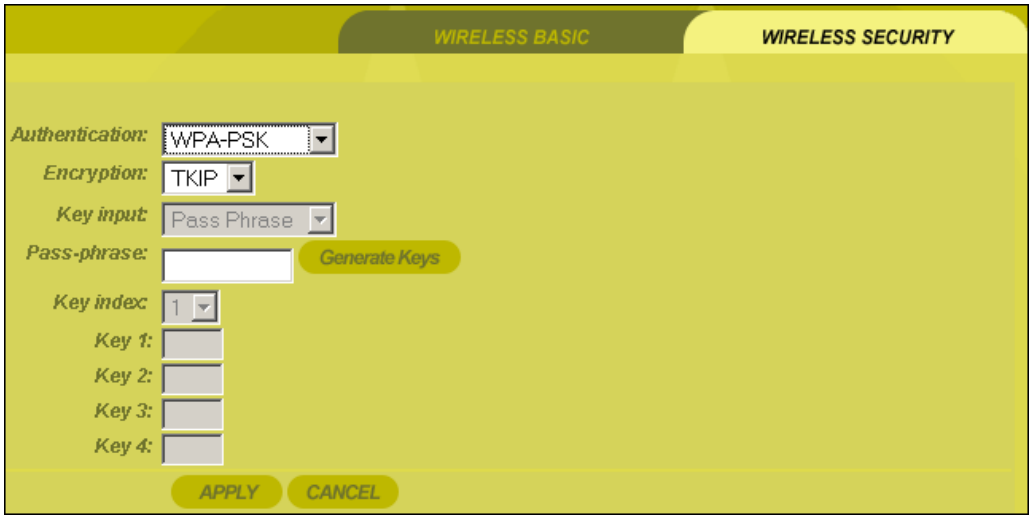
2 In the Login Password field, enter your ***Login Password***. For a stronger password, create one that contains multiple case-sensitive characters as well as numbers and symbols like "_ +)". It cannot be longer than 64 characters. If you forget your password, you can reset the WPS870G. See Test Print and Restore Button for further details.

3 In the Login Password Confirm field, re-enter your Password.

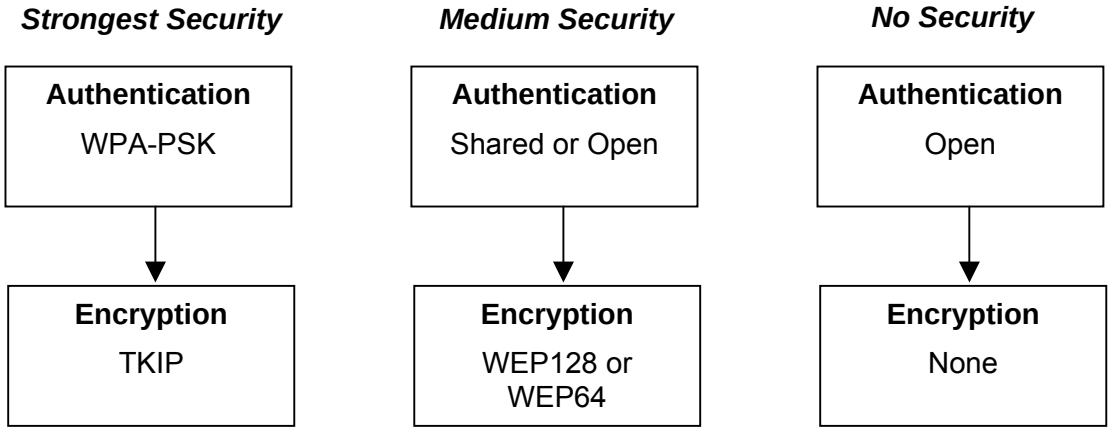
4 Click **Apply**.

5 After the settings have been accepted, click **Restart** and log back into the Configuration Utility using your Password.

6 Click **Wireless Settings** > **Wireless Security** to access the window. The Wireless Security window is displayed:



From the chart below, select the type of security that matches your wireless network. The type of authentication selected determines the type of encryption you can select.



7 For the strongest authentication, select **WPA-PSK** from the Authentication options.

8 If you selected WPA-PSK, select **TKIP** from Encryption options if not already selected.

9 If you selected WPA-PSK, type in the ***Pass-phrase*** used by the network.

10 Click **Apply** and then click **Restart**. Your wireless security configuration is now complete.

Section 4: Web-Based Management

This section explains how to configure the WPS870G using your Web browser.

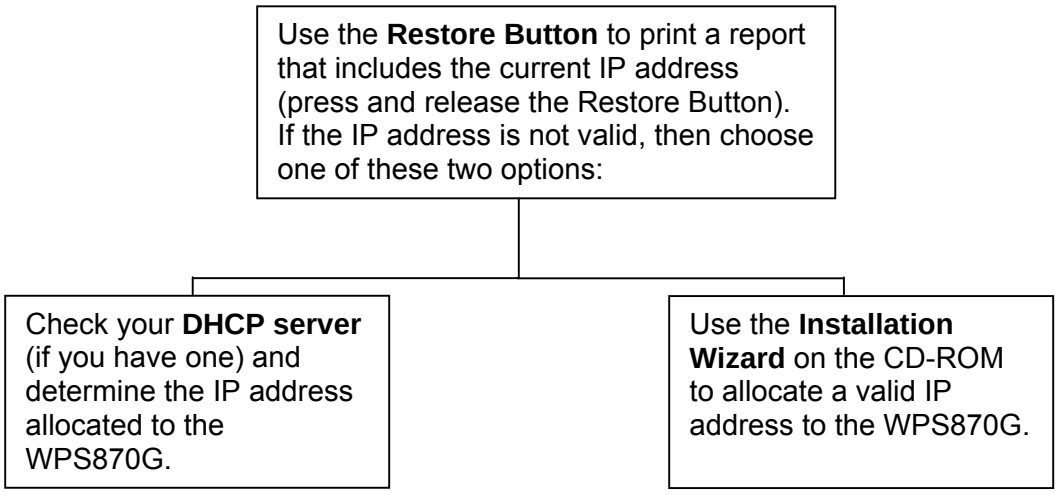
Overview

The WPS870G uses an HTTP server, which allows you to connect to the Wireless Print Server and configure it using your web browser. Most browsers should work, provided they support tables and forms. You use an IP address to log on to the Print Server's Web-based Management Utility.

Preparation

Because the WPS870G supports dynamic IP address allocation using DHCP, BOOTP, or RARP, the WPS870G ships with an IP address of 0.0.0.0. This is not a valid IP address.

Therefore, read the following flowchart to learn what you need to do:

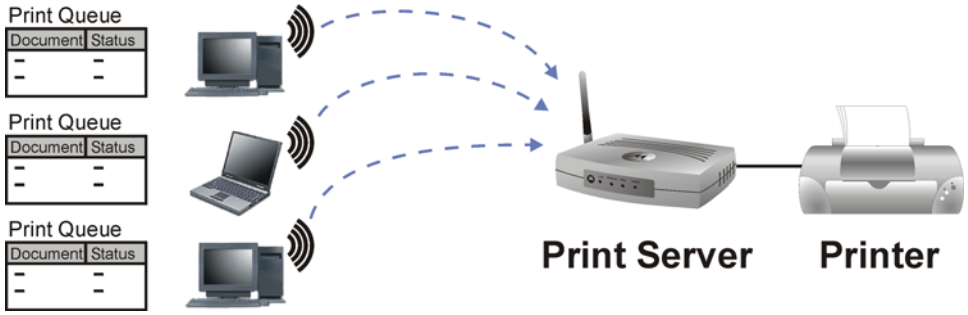

Use the **Restore Button** to print a report that includes the current IP address (press and release the Restore Button). If the IP address is not valid, then choose one of these two options:
Check your **DHCP server** (if you have one) and determine the IP address allocated to the WPS870G.
Use the **Installation Wizard** on the CD-ROM to allocate a valid IP address to the WPS870G.

If you are required to allocate an IP address for your WPS870G, refer to IP Assignment for details.

Network Layout Diagrams

Below are examples of the two methods to work with your WPS870G in a home environment.

DHCP IP address allocation



Static IP address allocation

Connecting to the WPS870G

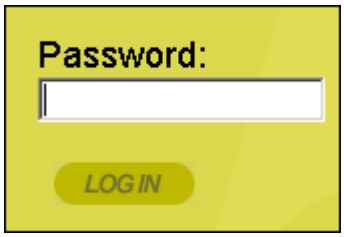
The screenshots seen here are intended for reference only; your version of firmware may differ slightly.

Your WPS870G must have received an IP address for you to connect to it, either by manually assigning it or by being assigned an IP address by your router.

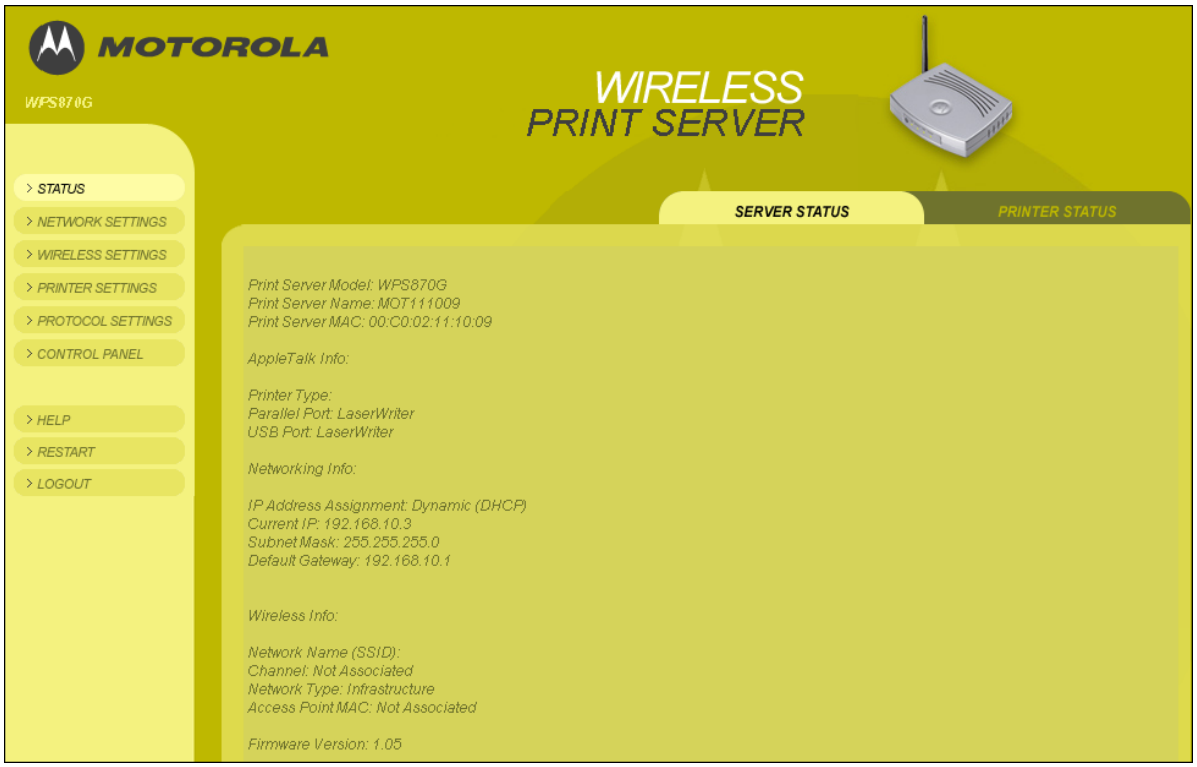
1 Start your Web browser.

2 In the URL field, enter ***http://*** followed by the IP address of the WPS870G, for example: 192.168.10.3. This is the IP address you assigned during installation. If this is the first time you are logging into the device, it is recommended that you bookmark the address for easy retrieval.

3 Type the ***password***. The default password is “motorola.”



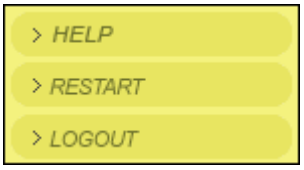
4 Press ENTER or click **LOG IN**. The default login page is displayed:



Use the menu bar at left to navigate major sections. Use the tabs across the top to open different sub-sections of the major section selected.

Help, Restart, and Logout

Click the appropriate command to execute the action.



Help	Accesses the online help guide.
Restart	Restarts your session with the Configuration Utility. When Restart flashes, the change you made requires that you restart the unit. **For convenience, it is recommended that you finish all of your configuration changes and then restart the unit.**
Logout	Logs out of the print server's Configuration Utility.

Status

Two windows are available for the Status section - Server and Printer. Each provides up-to-date information about the status of the WPS870G and attached printer(s).

Server Status

The initial window provides information about your WPS870G connections.

Click **Status** > **Server Status** to access the window. The Server Status window is displayed:

Review the Server Status page for details about your printer server functions.

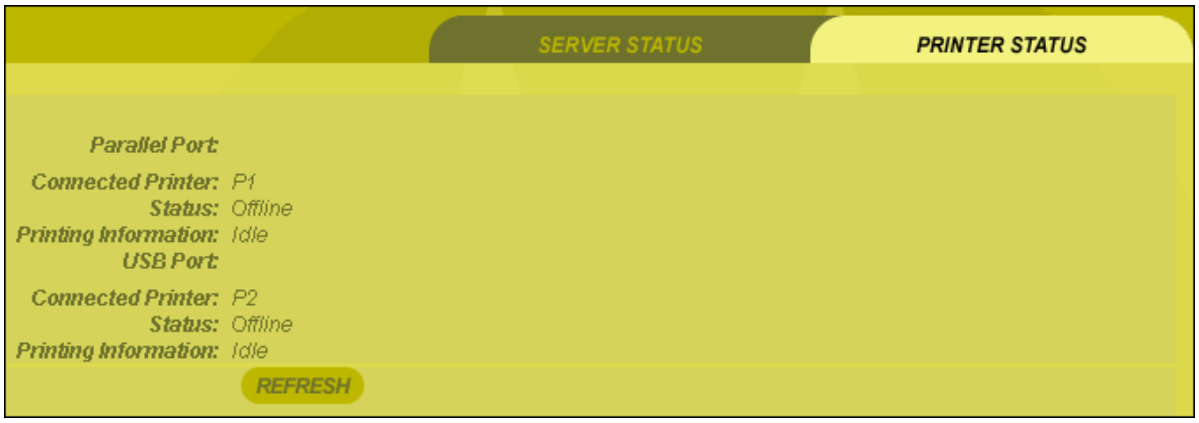
Item	Description
Print Server	▪ *Model*: The type of print server ▪ *Name*: The name of your print server. Change the name at **Printer Settings** – **Configure Server** ▪ *MAC*: The hardware address of your print server
AppleTalk Info	If an AppleTalk network is configured and connected, the information appears here.

Item	Description
Printer Type	Lists the printer(s) connected to the WPS870G's ports, if any.
Networking Info	If a network is configured and connected, the information about that network appears below this heading. Lists connection information that your WPS870G is using: ▪ Dynamic or Static IP address assignment ▪ Current IP address ▪ Subnet Mask ▪ Default Gateway
Wireless Info	Lists the current information configured for the wireless interface. ▪ *Network Name* – the SSID of the network currently configured ▪ *Channel* – the channel selected ▪ *Network Type* – Ad-Hoc or Infrastructure ▪ *Access Point MAC* – the MAC number of the access point to which you are connecting
Firmware Version	The current version of the firmware used by the WPS870G.

Printer Status

This window provides information about the printers that are connected to the WPS870G.

Click **Status** > **Printer Status** to access the window. The Printer Status window is displayed:



The printers attached to the WPS870G are displayed along with basic information.

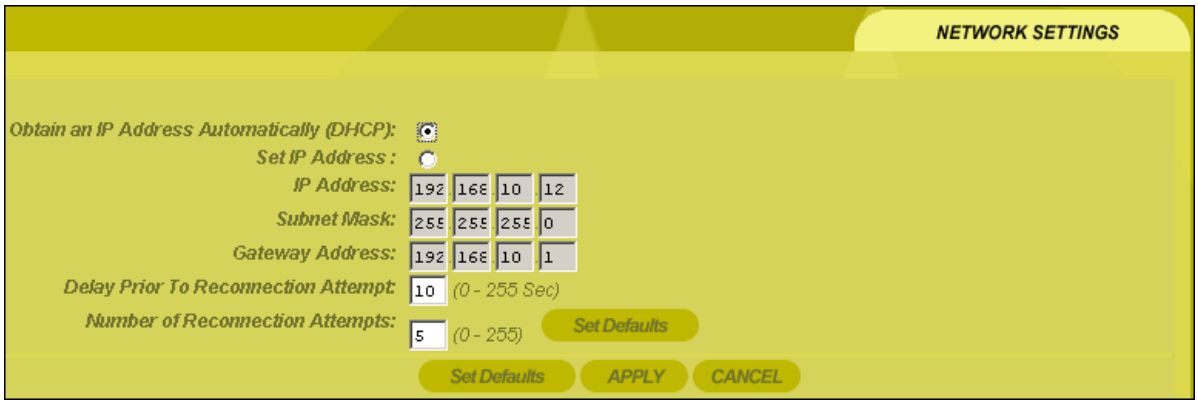
Click **Refresh** to update the status of the printers.

Network Settings

Network Settings allows you to change how you want to log on to the WPS870G.

Network Setting

Click **Network Settings** to access the window. The Network Settings window is displayed:



You have two options at this point, either DHCP or Set IP Address. If you are using a router with a DHCP server that has assigned an IP address to the WPS870G, then select **DHCP**. Motorola recommends this approach because there is less management involved.

Otherwise, select **Set IP Address** and type the necessary information.

Item	Description
IP Address	Type the IP address you want to assign to the WPS870G. If you require assistance in determining a static IP address, refer to Before You Begin, a Choice.
Subnet Mask	A subnet mask specifies a particular IP network or a host within a sub-network. If you have a router, type the Subnet mask for the segment to which the Wireless Print Server is attached, most likely 255.255.255.0.

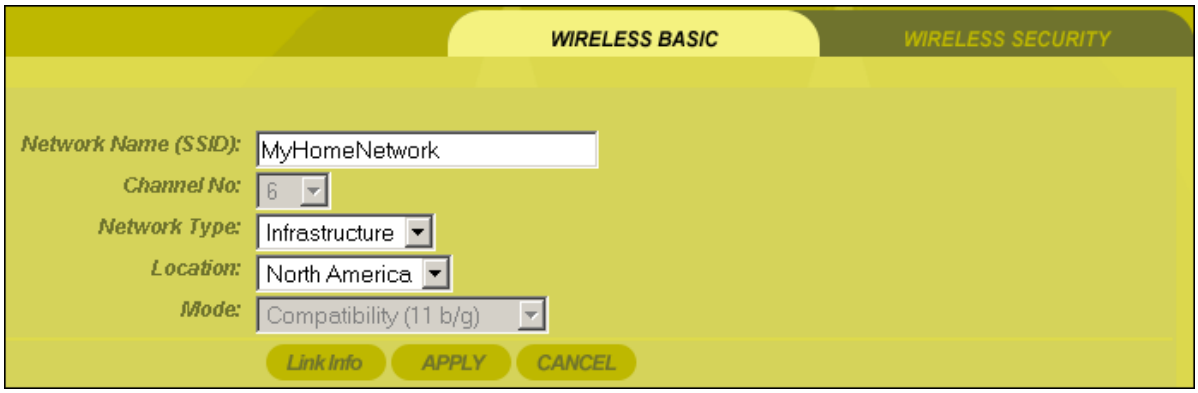
Item	Description
Gateway Address	The address of the gateway used to reach a specified destination; for example, on a network or the Internet. Gateways are devices that route packets between the different physical networks. If your network segment uses a router or gateways, type its IP address here. Otherwise, leave the address as 0.0.0.0.
Delay before reconnection attempts	Sets how long the WPS870G should wait before retrying a TCP/IP connection that is lost. Allowable values are from 0 to 255 seconds, with two as the default.
Number of reconnection attempts	Set how many attempts at reconnection will be made. After that, the TCP/IP session will be terminated. Allowable values are from 0 to 255, with 254 as the default.
Set Defaults	Click to return the Network Settings to its default settings.
Apply	Click to save your settings.
Cancel	Click to cancel any changes.

Wireless Settings

Wireless Settings allows you to update wireless parameters, enabling you to successfully connect to your wireless network. For example, use Wireless Basic window to enter the Network Name (SSID) and select the type of Wireless Encryption to use.

Wireless Basic

Click **Wireless Settings** > **Wireless Basic** to access the window. The Wireless Basic window is displayed:

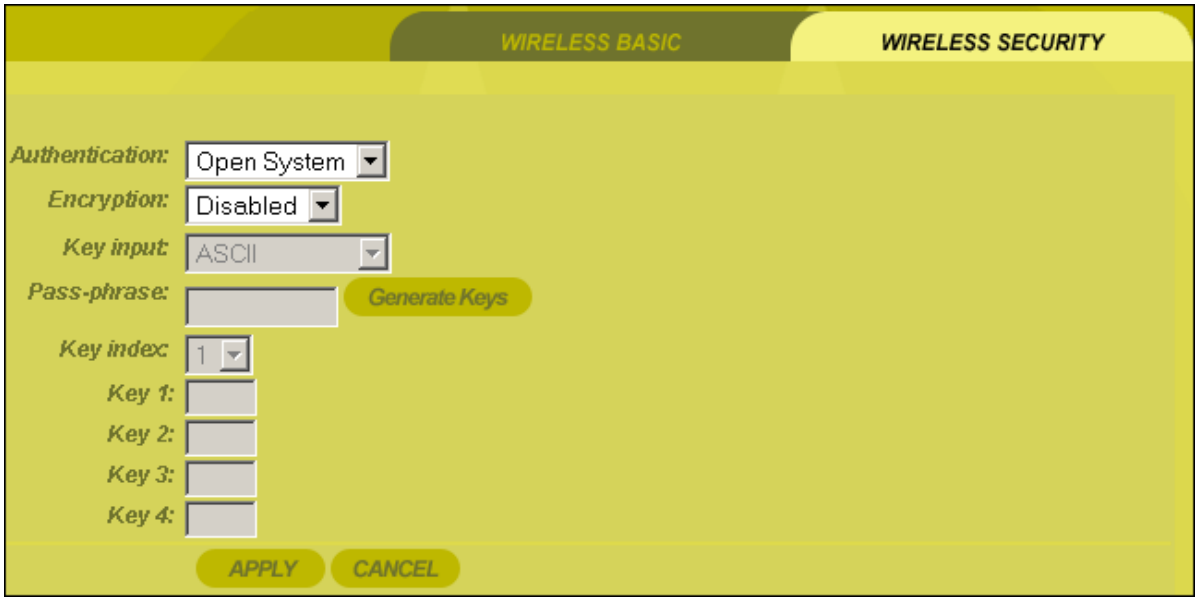


Item	Description
Network Name (SSID)	Type the ***Network Name*** used by your wireless network. The SSID is case sensitive.
Channel No	Select the wireless channel your network is using when Ad-Hoc is the selected Network Type. It is illegal to use a channel in any location outside of your regulatory domain. Also, be aware that Channel 1 may be a poor choice since it is close to the frequency used by cordless phones.
Network Type	Select the type of wireless network you are using. ▪ Infrastructure: select if you have one wireless station (a router) supplying many wireless access points. ▪ Ad-Hoc: select if you are using a network where access points talk directly to one another.
Location	Select your physical location. It has bearing on the wireless spectrum you are able to use.

Item	Description
Mode	Select the type of wireless standard for your wireless network if Ad-Hoc is selected: ▪ Compatibility (11b/g) ▪ Performance (11g only) ▪ Legacy (11b only) Select the appropriate mode. If using multiple access points supporting both 802.11b and 802.11g, select Compatibility (11b/g).
Link Info	Click to view the performance of your wireless access or Ethernet connections. From the Link Info window: ▪ Click **Refresh** from the Link Info window to update the connection settings. ▪ Click **Close** to return to the previous window.
Apply	Click to save your settings.
Cancel	Click to cancel any changes.

Wireless Security

The Wireless Security window allows you to configure the security settings for your WPS870G. Select the settings necessary to match the encryption used by your wireless network. Click **Wireless Settings** > **Wireless Security** to access the window. The Wireless Security window is displayed:



Item	Description
Authentication	Authentication establishes either an open or secure verification of communication with an access point (AP). This setting does not encrypt your transmission, rather it verifies your identity through a challenge/response system. Match the type of authentication used by the access point. ▪ Open System – No authentication is used ▪ Shared Key – Shared Key authentication is used ▪ WPA-PSK – Wi-Fi® Protected Access (WPA) authentication (802.1X) is used with a pre-shared key (PSK) *WPA-PSK is recommended for home users.*

Item	Description
Encryption	Match the type of wireless encryption used by the wireless network. This security setting encrypts your wireless transmission. ▪ Disabled – No encryption used ▪ WEP 64 – Wired Equivalent Privacy - 64-bit strength (provides 4 Keys) ▪ WEP 128 – Wired Equivalent Privacy - 128-bit strength (provides 2 Keys) ▪ TKIP (Temporal Key Integrity Protocol) - changes the temporal key often (provides 1 Key) *TKIP is recommended for home users.*
Key Input	Available if WEP or WPA-PSK encryption is selected. Select the type used by the wireless network: ▪ Pass Phrase ▪ Hexadecimal ▪ ASCII
Pass-phrase	If the wireless network uses a pass-phrase for WEP or WPA-PSK, type it here and click **Generate Keys**. The Key fields are populated with the equivalent of the pass phrase in WEP. In WPA-PSK, there is no need to generate keys as the pass-phrase is shared between the client and the server. The Pass-phrase must be between 8 and 63 characters. There is no guarantee that the pass-phrase option will work with non-Motorola devices.
Key Index	Match the Key Index used by the wireless network. The number you select here determines which field is used below. For example, a Key Index of 2 corresponds to the Key 2 field.
Key 1 – 4	If you are not using a WEP pass-phrase for your wireless network, type the network's security WEP key into the appropriate key field (determined by what is selected in the Key Index).
Apply	Click to save your settings.

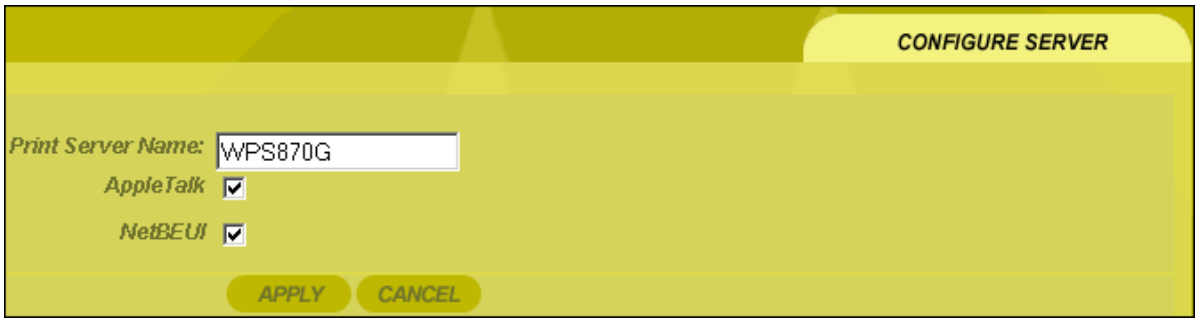
Item	Description
Cancel	Click to cancel any changes.

Printer Settings

Printer Settings allows you to update print server parameters to work with different printer networks.

Configure Server

Click **Printer Settings** to access the window. The Configure Server window is displayed:



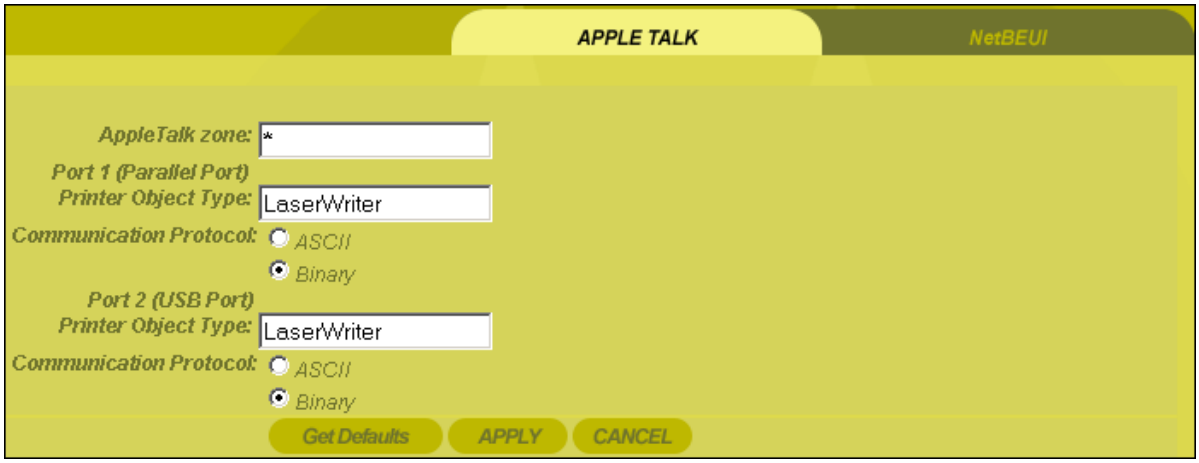
Item	Description
Print Server Name	Change the name of the Print Server to a recognizable name.
AppleTalk	Click to use AppleTalk on your network.
NetBEUI	Click to use NetBEUI on your network.
Apply	Click to save your settings.
Cancel	Click to cancel any changes.

Protocol Settings

Protocol Settings allows you to update print server parameters to work with different printer networks.

AppleTalk®

Click **Protocol Settings** to access the AppleTalk window. The AppleTalk window is displayed:

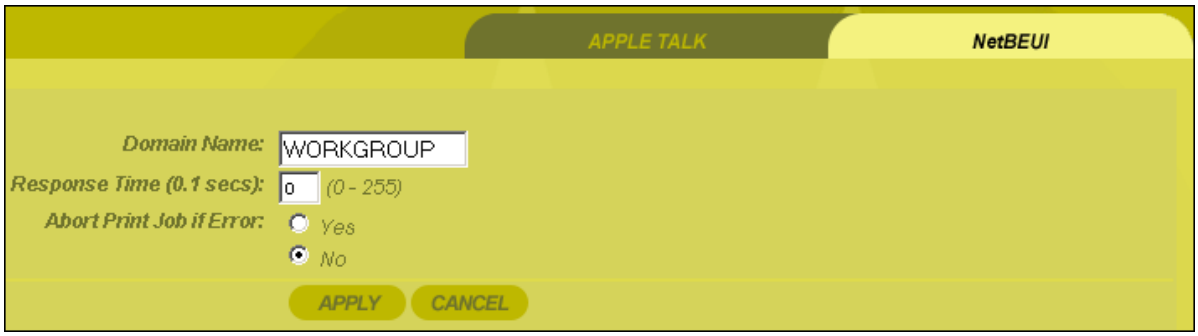


Item	Description
AppleTalk zone	Type the name of the AppleTalk zone to which you wish to connect. An asterisk "*" allows you to connect to any AppleTalk zone.
Port 1 (Parallel Port) Printer Object Type	Type a name to describe the printer driver used for the port. The Wireless Print Server is designed to work with LaserWriter (or 100% compatible) printers.
Communication Protocol	Sets **ASCII** or **Binary** communication protocol for the port.
Port 2 (USB Port) Printer Object Type	Type a descriptive name to describe the printer driver used for the port. The Wireless Print Server is designed to work with LaserWriter (or 100% compatible) printers.
Communication Protocol	Sets **ASCII** or **Binary** communication protocol for the port.
Get Defaults	Click to return the AppleTalk options to their default settings.

Item	Description
Apply	Click to save your settings.
Cancel	Click to cancel any changes.

NetBEUI

Click **Protocol Settings** > **NetBEUI** to access the NetBEUI window. The NetBEUI window is displayed:



Item	Description
Domain Name	Type the designated work group to be serviced by the Wireless Print Server. This field is not case sensitive, so identical names with different cases are considered to be the same name.
Response Time (0.1 secs)	Sets how quickly jobs are sent to the printer. The default value of zero (0) delay should be increased only if your printer cannot cope with no delays.
Abort Print Job if Error	▪ **Yes** terminates a print job if a printing error occurs. ▪ **No** (default) tries to continue but may cause print errors. If print errors occur, try resetting this value to **Yes**.
Apply	Click to save your settings.
Cancel	Click to cancel any changes.

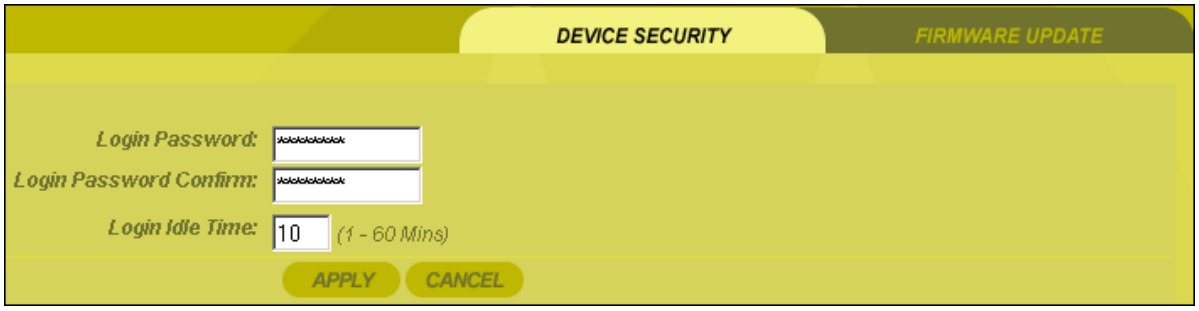
Control Panel

Control Panel allows you to adjust the password to the WPS870G and to update the unit's firmware.

Device Security

Device Security enables you to change the password of the Web-based GUI of the WPS870G as well as the Login Idle Time.

Click **Control Panel** to access Device Security. The Device Security window is displayed:



Item	Description
Login Password	Type a new password. There is a minimum of 0 characters and a maximum of 16.
Login Password Confirm	Enter the password again to confirm you entered it correctly. If you ever forget the password, you can reset the WPS870G to factory defaults. Refer to Test Print and Restore Button for further details.
Login Idle Time	This determines how long your connection to the Graphical User Interface (GUI) remains alive with no activity. The Login Idle Time default is 10 minutes. Type a new figure to change the idle time.
Apply	Click to save your settings.
Cancel	Click to cancel any changes.

Updating Firmware

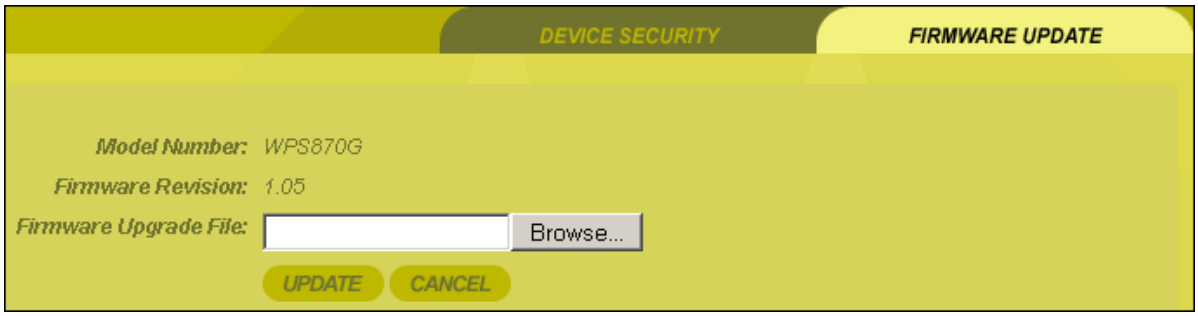
The Firmware Update window allows you to update your Print Server's firmware (the mechanism that controls your Print Server's hardware). Click **Login Settings** > **Firmware Update** to access the Firmware Update window.

To check for a firmware update, access this website www.motorola.com/broadband/networking. New firmware can be found under the "Support and Downloads" link.

To update the firmware:

1 Download the latest firmware file to your computer from the Motorola website. Note the location where you downloaded the file.

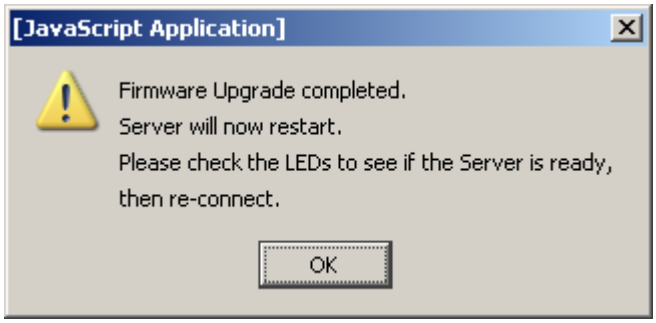
2 Click **Control Panel** > **Firmware Update** to access the Firmware Update window:



3 To locate the file you downloaded, type the path to the file or click **Browse** and navigate to it.

4 Click **Update** to update the router with the selected firmware file. A dialog box is displayed asking to continue.

5 Click **OK** to continue. When the firmware upgrade completes, a dialog box appears:



Check that the LAN or Wireless LED is illuminated on your WPS870G and click **OK**. Log back on to the WPS870G by entering the WPS870G's IP address.

If you encounter trouble restarting the unit, press the Restore button for 5 seconds to reset it to its default settings. See Test Print and Restore Button for further details.

Section 5: Alternate Client Computer Configurations

This section describes possible client configurations that LAN clients can use for the printer or printers attached to the WPS870G when **not** using the Print Server utility. Use one of these methods only if you are unable to use the Printer Server's utility.

Overview

Before performing client configuration, the WPS870G must be installed on your LAN and configured as described in Section 2:Installation. Both the WPS870G and the attached printer must be powered on.

Printing Methods

The Wireless Print Server supports a number of printing methods:

- ***Print Server Utility*** is the recommended method. See Section 2:Installation for details.
- ***IP Printing*** means that the print jobs are stored (queued) on a computer and then sent directly to the WPS870G using an IP address.
- ***Server-based Print Queue*** means that all print jobs are stored (queued) on the Network Server (for example, Windows NT/2000) and then sent to the WPS870G. This allows the Network Administrator to modify the Print Queue. For example, an important job can be moved to the head of the queue.
- ***Windows SMB (Server Message Block)*** printing is a Microsoft standard for using a Network Printer. No additional software needs to be installed on your Windows computer and printing from MS-DOS programs is supported. However, because the WPS870G cannot store files, large print jobs may cause problems.
- ***AppleTalk*** is supported, and normally no configuration of the WPS870G is required. See the Macintosh (AppleTalk) for details of client configuration.

Which printing method should I use?

- If using Windows 98SE, Me, 2000, or XP, the easiest method to use (when not using the Print Server utility) is IP Printing.

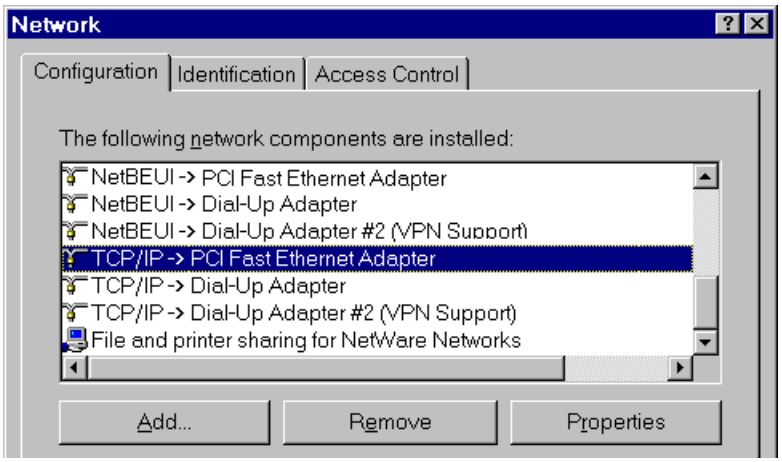
  If using Windows, and you need to print from MS-DOS programs, use SMB.

  However, SMB is not suitable for large or complex documents, so if you need this as well as MS-DOS printing, you should install both IP Printing and SMB printing. MS-DOS programs can use the SMB printer; Windows programs should use IP Printing.
- If your LAN has Network Servers (for example, Windows NT®, Windows 2000 Server) use the method advised by your Network Administrator. The WPS870G can print using a queue located on a Network server, if desired.
- **Unix** users - refer to the Appendix C: Unix Systems.
- **Macintosh** users - refer to the Macintosh (AppleTalk) or Macintosh OS X.

Checking Your Network Protocols (Windows 9x)

Your computer must have either TCP/IP or NetBEUI protocols installed. All versions of Windows after Windows 95 already have TCP/IP installed by default. You must verify that the desired protocols are available, as follows:

1 From your computer, click **Start** > **Settings** > **Control Panel** > **Network**. You should see a window similar to the following:



- The top line in the list (NetBEUI -> PCI Fast Ethernet Adapter) indicates that the NetBEUI protocol is installed on this computer. Your computer will show the name of your Network card rather than "PCI Fast Ethernet Adapter".
- The highlighted line (TCP/IP -> PCI Fast Ethernet Adapter) indicates that TCP/IP is installed. Your computer will show the name of your Network card rather than "PCI Fast Ethernet Adapter".

2 If neither protocol is present:

- Install the NetBEUI protocol by selecting **Add** > **Protocol** > **Microsoft** > **NetBEUI** > **OK**. You may be prompted for your Windows CD-ROM.
- If required, you can also install TCP/IP. However, depending on your LAN environment, TCP/IP may require further configuration.

3 If either protocol is already installed, proceed with installation.

Windows IP Printing

You can set up your computer(s) to print from your applications using an IP address instead of the WPS870G's Printer Utility. To accomplish this, you need to add and configure a printer port on your computer with the appropriate information. With this printing method, print jobs are stored (queued) on your computer, and then sent to the WPS870G when it is available.

What Is Required

To enable this feature you need the following:

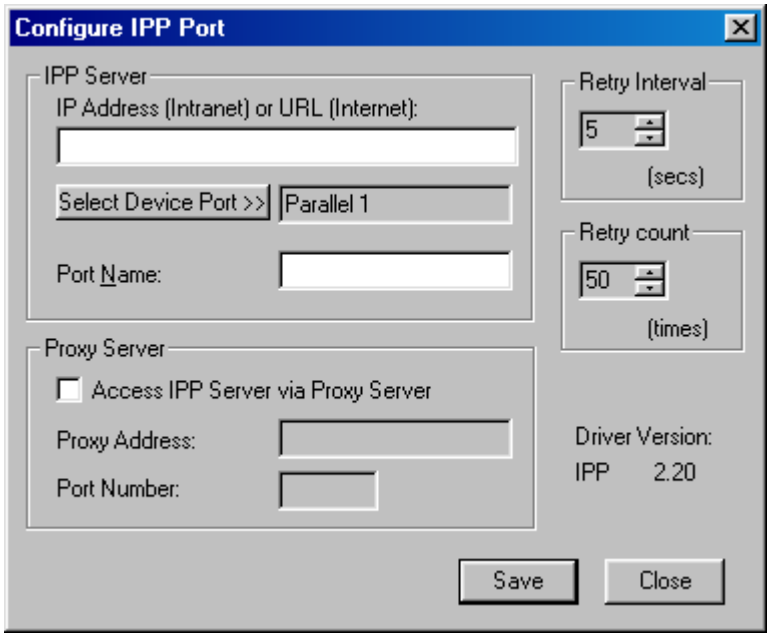
- An installed and connected WPS870G.
- An active printer attached to the WPS870G.
- The IP address of the WPS870G – it is suggested that you use a Static IP address for this feature, because an IP address supplied by a DHCP server might change.
- For older versions of Windows, the IPP Client software must be installed on each computer. The IPP_Client.exe software is located on the CD-ROM supplied with the WPS870G. Windows 2000 and XP require no additional software.

Windows 98SE/ME IP Printer Port Setup

This section installs the IPP client and configures your port for IP printing.

1 Insert the CD-ROM supplied with your WPS870G. Navigate to the IPP folder and double-click the *IPP_Client.exe* file to install the program.

2 Once finished, navigate to the program by clicking **Start** > **Programs** > **IPP Port Monitor** > **Add IPP Port**. The Configure IPP Port window is displayed:

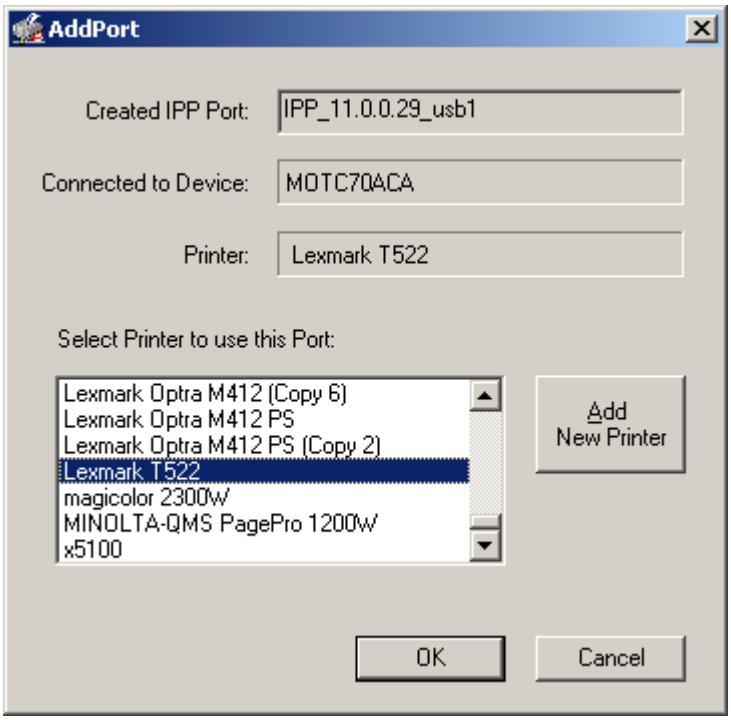


3 In the IP address field, type the ***IP address*** or ***URL*** of the WPS870G. The Port Name field automatically displays the name used. If using a Proxy Server, enter the necessary information (this will be the same as your browser configuration).

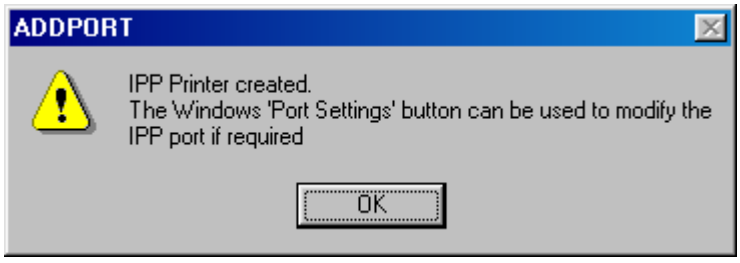
4 Click **Select Device Port** to view the available ports on the WPS870G, and select the appropriate port.

5 Click **Save**.

The AddPort window is displayed:



6 If desired, you can click **Add New Printer** to add a new printer for the IP port. Highlight the printer you want to use for the IP port and click **OK**. The ADDPORT window is displayed:



7 Click **OK**. Your printing port is now configured for IP Printing. To print from any application, select the printer configured for the port.

Note: If using the Epson Spooler Manager, this program must be disabled, as follows:

1 Run the Epson Spooler Manager.

2 Select **Queue Setup** from the menu.

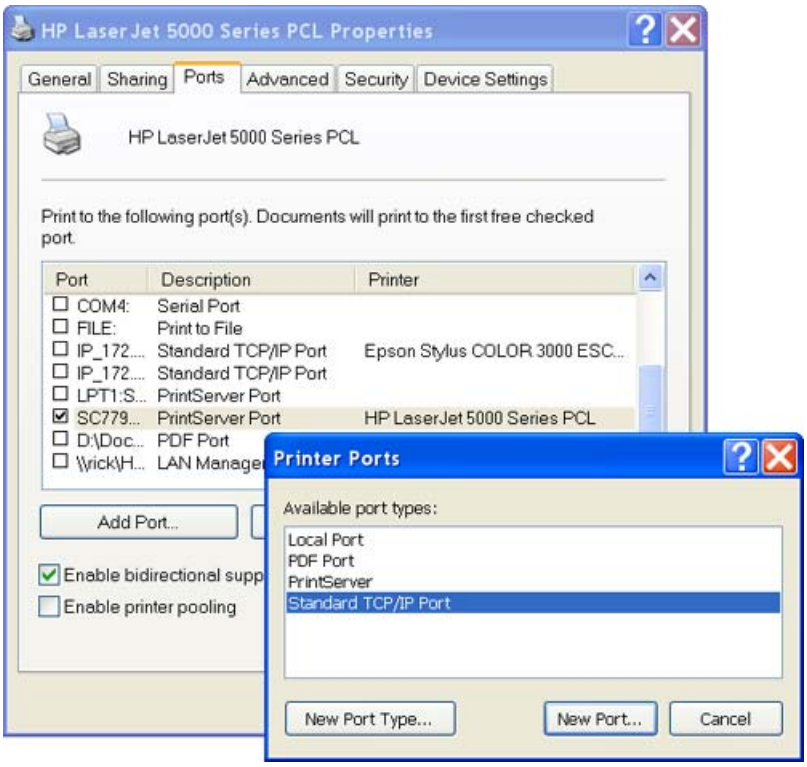
3 Click **Use Print Manager** for this port.

4 Click **OK** to exit.

Windows 2000/XP IP Printer Port Setup

The recommended printing method is to use the LPR protocol for IP printing:

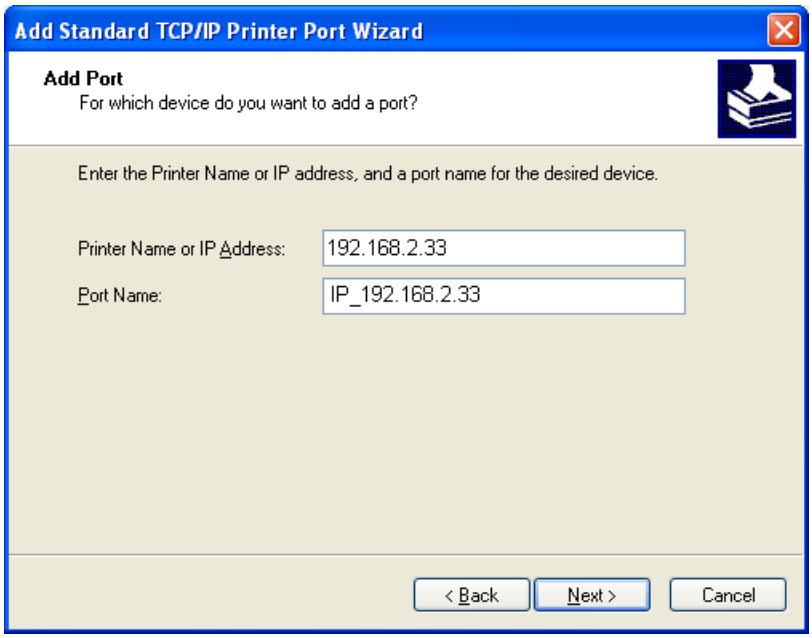
1 Open your Printers folder (usually **Start** > **Settings** > **Printers**), right-click the desired printer and select **Properties**. The Properties window is displayed:



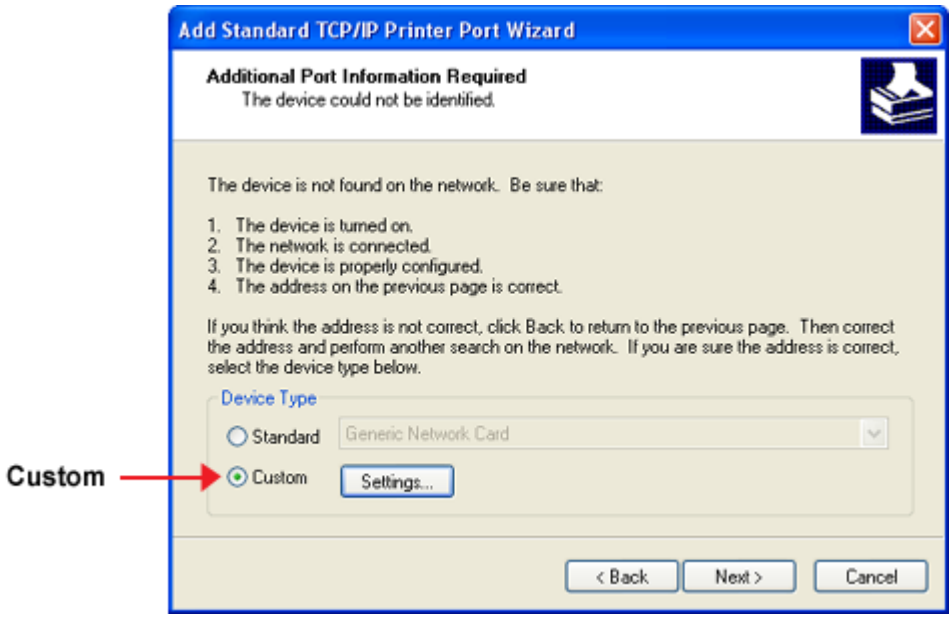
2 Select the **Ports** tab and click **Add Port**. The Printer Ports window is displayed.

3 Choose **Standard TCP/IP Port** and then click **New Port**.

The Add Standard TCP/IP Printer Port Wizard window is displayed:

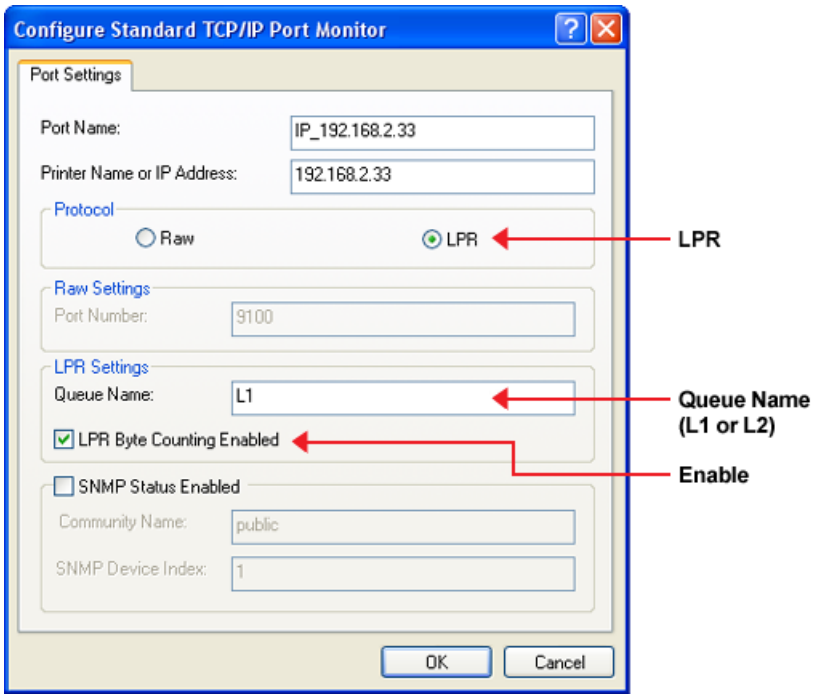

Add Standard TCP/IP Printer Port Wizard
Add Port
For which device do you want to add a port?
Enter the Printer Name or IP address, and a port name for the desired device.
Printer Name or IP Address:
192.168.2.33
Port Name:
IP_192.168.2.33
< Back
Next >
Cancel

4 Enter the ***IP Address*** of the Print Server in the Printer Name or IP address field and click **Next**. The Additional Port Information Required window is displayed:


Add Standard TCP/IP Printer Port Wizard
Additional Port Information Required
The device could not be identified.
The device is not found on the network. Be sure that:
1. The device is turned on.
2. The network is connected.
3. The device is properly configured.
4. The address on the previous page is correct.
If you think the address is not correct, click Back to return to the previous page. Then correct the address and perform another search on the network. If you are sure the address is correct, select the device type below.
Device Type
Standard
Generic Network Card
Custom
Settings...
Custom
< Back
Next >
Cancel

5 Select **Custom** and click **Settings**.

The Configure Standard TCP/IP Port Monitor window is displayed:



6 On the Port Settings tab:

- Select **LPR**
- Enter a ***Queue name*** (L1 for Port 1 (Parallel), L2 for Port 2 (USB))
- Ensure the LPR Byte Counting Enabled setting is selected.

7 Click **OK** to confirm your changes and close this window. Follow the prompts to complete the Wizard. IP printing is now enabled.

Print Jobs Management

Print jobs can be managed like any Windows printer. Open the Printers folder (**Start** > **Settings** > **Printers**) and double-click any printer to see the current print jobs.

If the printer attached to the WPS870G has been changed (for example its driver has been updated), run the Add IPP Port program again and select the correct printer.

Delete a Printing Port

If the WPS870G's IP address has changed, and you can no longer print, delete the WPS870G's port and re-install it.

To delete a port, use the Windows Delete Port facility:

1 Right-click any printer in the Printers folder and select **Properties**.

2 On the Details or Ports tab (depending on your version or Windows), locate and click **Delete Port**.

3 If Windows responds that a printer is still using the port, apply another port to the selected printer and try deleting the port again.

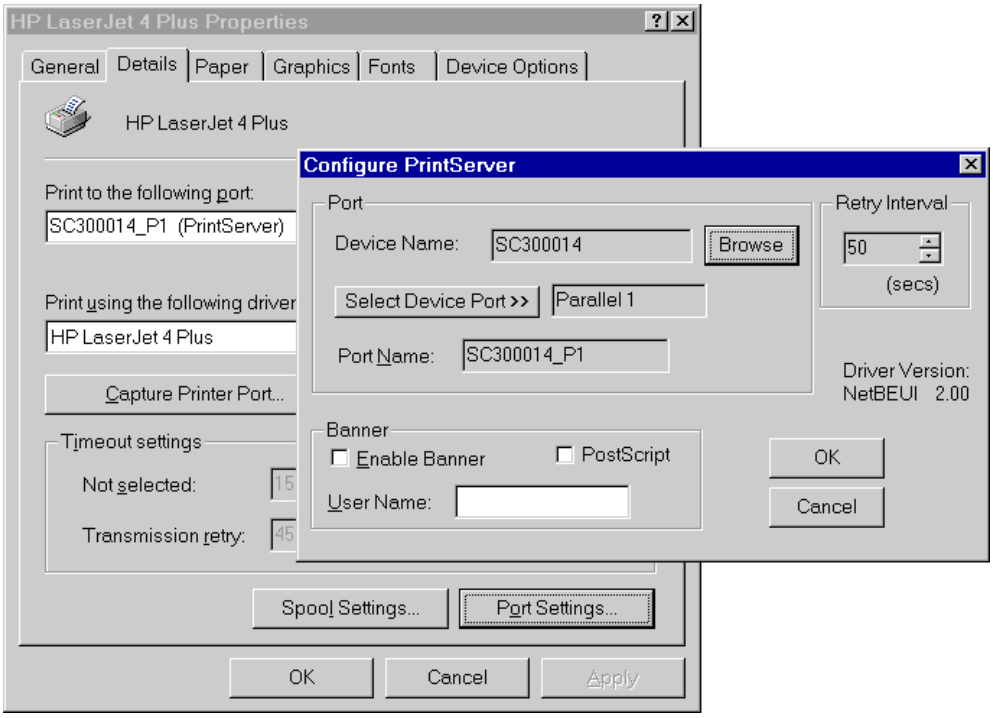
Advanced Port Options

1 Click **Start** > **Settings** > **Printers** to open the Printers folder.

2 Right-click the desired printer and select **Properties**.

3 On either the Details or Ports tab (depending on your version of Windows), click **Port Settings**.

A window is displayed (the window on your system may differ slightly from the example below):



Items shown on this window are as follows:

Port	If desired, click **Browse** to select a different Wireless Print Server. If the selected device has multiple ports, use **Select Device Port** to select the port. The Port Name cannot be changed after installation. This name is shown in the Printer's Properties.
Retry Interval	Sets how often Windows polls the Wireless Print Server to establish a connection when the printer is busy. Increase this value if you get too many warning messages.

Banner	▪ Check **Enable Banner** to print a banner page before each print job. ▪ If using a PostScript Printer, click to enable for printing a banner. ▪ The ***User Name*** will be printed on the banner page.

Windows SMB Printing

This method requires no additional software to be installed, but either the NetBEUI or TCP/IP protocol must be installed on your computer.

If you need to change the Domain name of your WPS870G, run the Installation Wizard again.

Use the following procedure to configure the WPS870G's printer as a Windows SMB network printer:

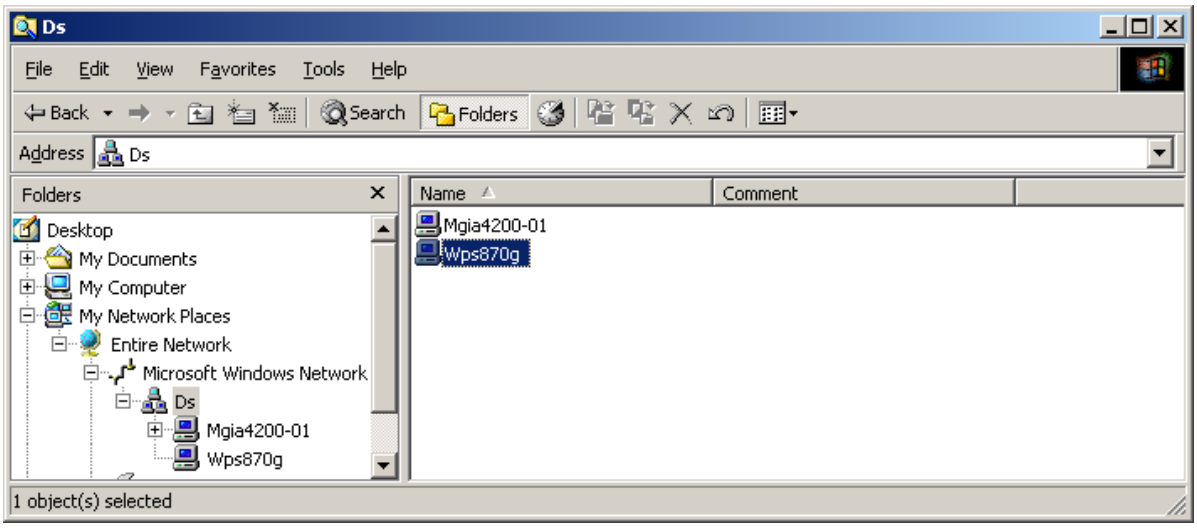
1 Double-click the **Network Neighborhood** or **My Network Places** icon on your desktop.

2 From the View menu, select **Details**.

3 Locate the desired Wireless Print Server, as shown in the example below:

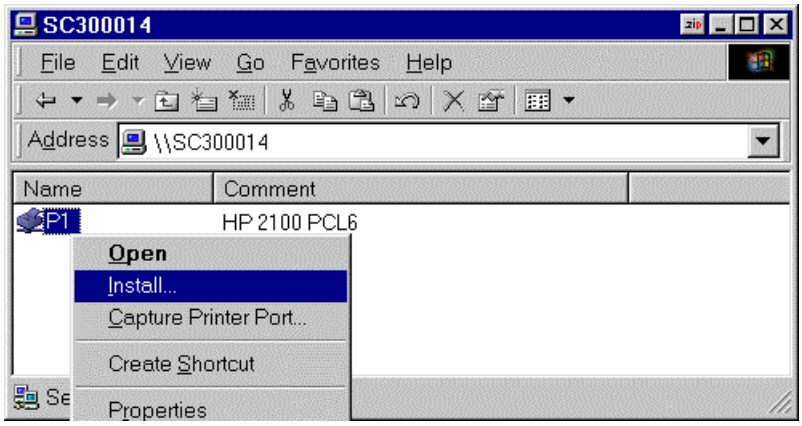
– If it is the same Workgroup as your computer, it will be listed.

– If it is in a different workgroup, double-click **Entire Network**, then double-click the appropriate Workgroup to locate it.



4 Double-click **WPS870G** to view a Printer icon for each printer port. The Comment field may indicate what type of printer is connected to the port.

5 To install a printer, right-click the ***desired printer icon***, and choose **Install**, as shown below. This starts the Add Printer wizard.



6 Follow the prompts to complete the installation.

– Select the Printer Manufacturer and Model to match the printer connected to this port on the Wireless Print Server, and complete the Wizard.

This printer now appears in your Printers folder (**Start** > **Settings** > **Printers**) and can be used like any other printer. However, SMB printing is not suitable for large complex print jobs – use Windows IP Printing instead.

Windows with Server-based Print Queues

With a Server-based Print Queue, the WPS870G is installed on an existing Network Server (Windows, Unix, or NetWare), rather than on your computer.

If your Network Administrator uses this system, each Windows client must be set up to work with your network server as follows:

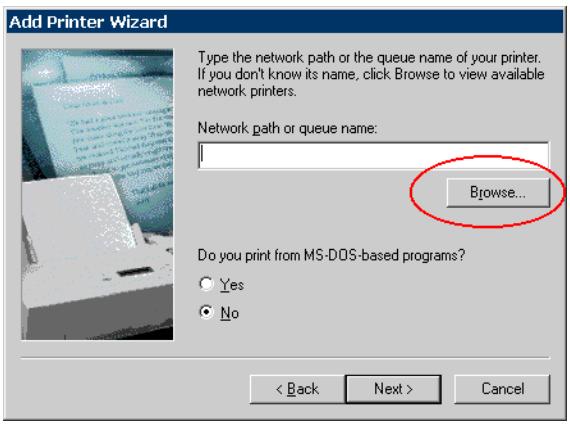
1 Open your Printers folder, and start the Add Printer Wizard by clicking **Start** > **Settings** > **Printers**.

2 Double click **Add Printer**.

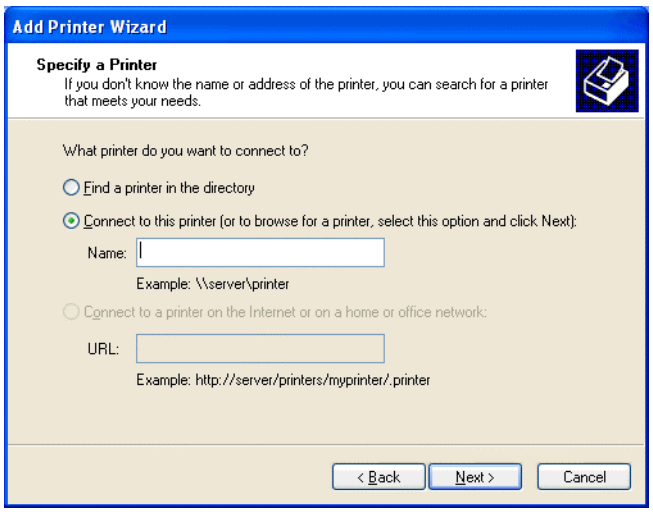
3 When prompted, select **Network Printer** and click **Next**.

4 When prompted for *Network path or queue name*:

- On Windows 98SE/ME, click **Browse**.
- On Windows 2000/XP, leave the field blank and click **Next**.


Add Printer Wizard
Type the network path or the queue name of your printer. If you don't know its name, click Browse to view available network printers.
Network path or queue name:
Browse...
Do you print from MS-DOS-based programs?
Yes
No
< Back
Next >
Cancel

Network Path - Windows 98/ME


Add Printer Wizard
Specify a Printer
If you don't know the name or address of the printer, you can search for a printer that meets your needs.
What printer do you want to connect to?
Find a printer in the directory
Connect to this printer (or to browse for a printer, select this option and click Next):
Name:
Example: \\server\printer
Connect to a printer on the Internet or on a home or office network:
URL:
Example: http://server/printers/myprinter/.printer
< Back
Next >
Cancel

Network Path - Windows 2000/XP

5 Browse the network and locate the Server and Printer (or Print Queue) that your Network Administrator advised you to use.

6 Click **OK**, then **Next**.

7 Select the correct printer Manufacturer and Model, as advised by your Network Administrator and click **Next**.

8 Follow the prompts to complete the Wizard.

The new printer will be listed with any other installed printers, and may be selected when printing from any Windows application.

Macintosh® (AppleTalk)

The Wireless Print Server supports AppleTalk (EtherTalk), PAP, ATP, NBP, ZIP and DDP protocols, enabling Macintosh computers on the network to view and use the Wireless Print Server as a regular AppleTalk printer.

Software Requirements

Mac OS 9.x or newer.

AppleTalk Setup

1. Click the apple icon and choose **Control Panel** > **AppleTalk**.
2. Ensure that **Ethernet** is selected under AppleTalk Connection.
3. Click **Chooser**. The Chooser panel opens.
4. Click on either the **LaserWriter 8** icon (recommended) or the **LaserWriter 7** icon. LaserWriter 8 uses the fonts installed in the printer itself, so the printing response time is quicker. LaserWriter 7 uses the fonts installed in the computer, which increases network traffic and takes more printing time.
5. Choose a ***PostScript printer*** from the list.
6. Click **Create** and it searches for a PPD automatically.
7. Select a ***printer description*** from the list.
8. Click **Select**. Configuration is complete.

Printing

Printing with the Wireless Print Server installed in an AppleTalk network is identical to normal printing. Just select **File** > **Print** and choose the desired printer.

Advanced Setup and Management

In a mixed Windows computer/Macintosh environment, you can use the Web-based utility to configure the Wireless Print Server.

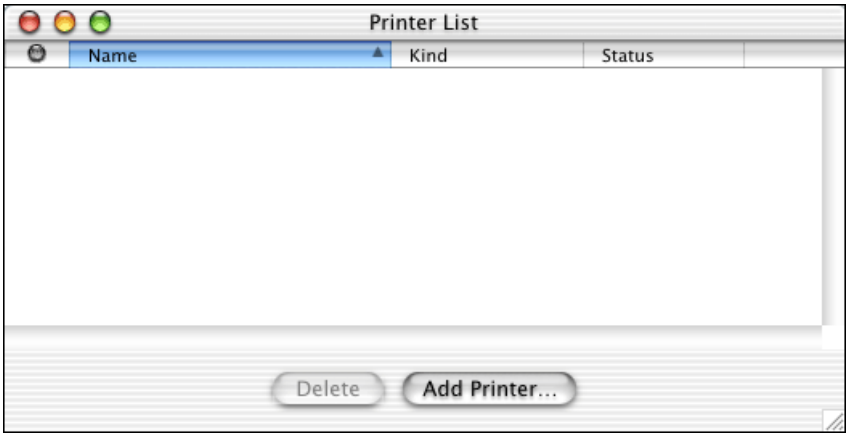
Macintosh OS X

If using LPR printing, you need to ensure the Wireless Print Server has a valid IP address before configuring your Mac as follows (see IP Assignment for details).

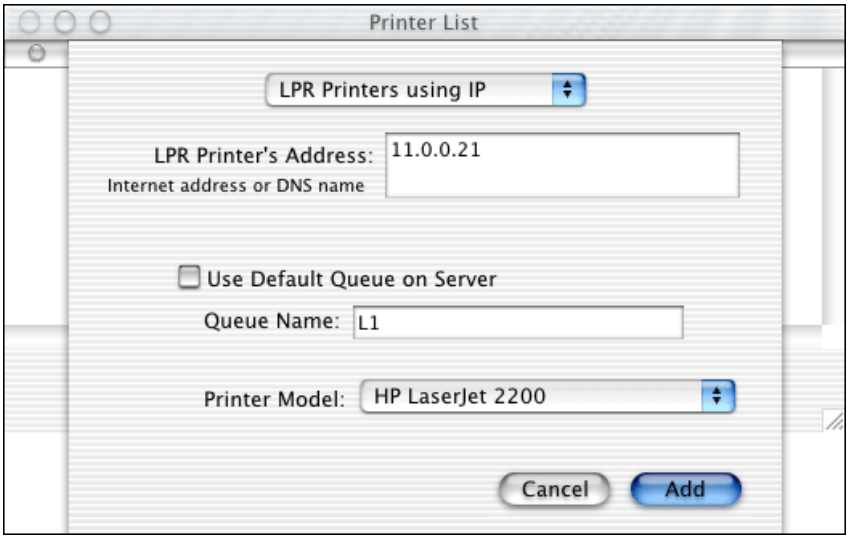
LPR Printing Setup

Use the following procedure to enable a printer:

1 Select the **Printer List** icon. The Printer List window is displayed:



2 Click **Add Printer**. The Printer List window displayed.



3 Select **LPR Printers using IP**.

4 In the LPR Printer's Address field, enter the ***IP address*** of the Print Server.

5 Enter the ***Queue Name*** (L1 for Parallel Port, L2 for USB Port).

6 Select the ***Printer Model*** from the drop-down list.

7 Click **Add**. Configuration is complete.

Section 6: Internet Printing Protocol (IPP)

This section covers the Internet Printing Protocol for the WPS870G.

Overview

Your WPS870G uses a special protocol, IPP (Internet Printing Protocol), to allow remote printing to any printer on your network, or if your network allows, from anywhere on the Internet. To gain access to the IPP feature, you must install the IPP software on computers not running Windows 2000 or XP (they already include the necessary software).

All computers require configuration to work with this protocol.

Basically, you configure a printer with your router's IP address, the router in turn forwards the print job to the Print Server.

Internet Printing Protocol (IPP) Requirements

The Print Server contains the necessary firmware to act as an IPP Server. No additional configuration is necessary. However, the following requirements must be met:

- The Print Server must have a valid IP address. If not, refer to IP Assignment. For printing from the Internet, the Print Server's IP address must be external (allocated by your ISP); or if your router is capable, you can configure your router to forward the IP printing job to your IPP printer. This means you would use your router's IP address for configuring IPP printing.
- Any Router, Gateway or Firewall linking your LAN to the Internet must not block the IPP protocol. Specifically, consider the port (631) your WPS870G will use for IPP printing and decide if a firewall might block it.
- You must advise clients of the correct URL or IP address of the IPP Server. To use a URL rather than an IP address, you need to register the domain name for the URL.
- Unless your computers are using Windows 2000 or XP, you must provide and install IPP Client software. The IPP_CLIENT.EXE file is located in the IPP folder on the CD-ROM.

Installing IPP Client – Windows 98SE/ME

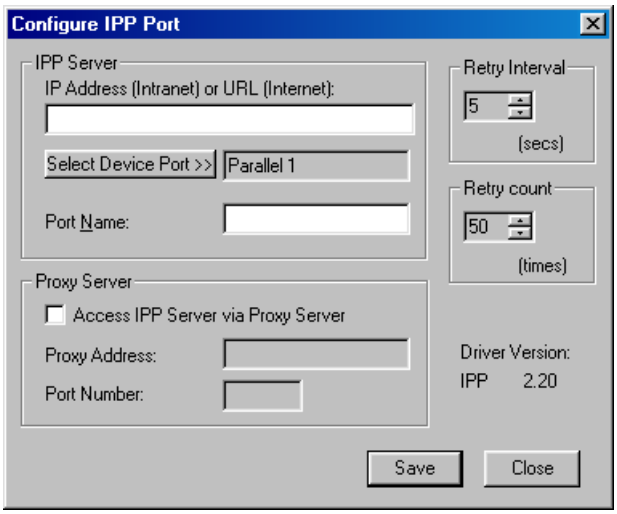
To install the IPP client in Windows 98SE/ME:

1. Insert the CD-ROM supplied with your WPS870G.
2. Navigate to the IPP folder.
3. Double-click the *IPP_Client.exe* file to install the program.

IPP Client Configuration – Windows 98SE/ME

To configure the IPP client in Windows 98SE/ME:

1 Navigate to the program by clicking **Start** > **Programs** > **IPP Port Monitor** > **Add IPP Port**. The Configure IPP Port window is displayed:



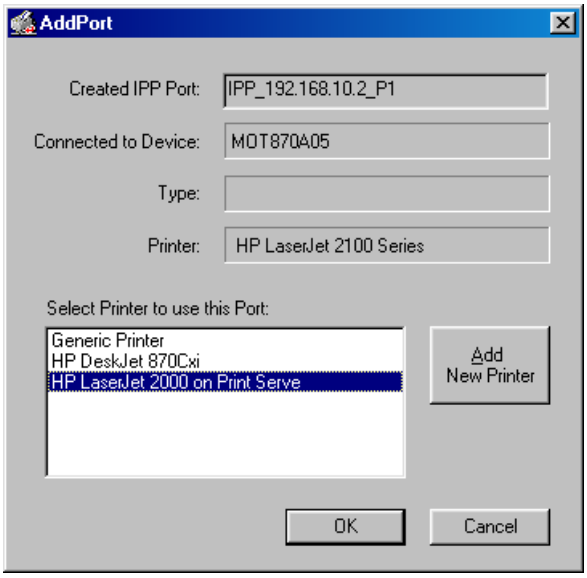
2 Enter the ***IP Address*** or ***URL*** of the IPP Server. If using a router with forwarding capabilities, then enter the router's ***IP address***. If you are assigned a public IP address from your ISP, enter that ***IP address***.

3 If Internet access from your location is using a Proxy Server, check **Access IPP Server via Proxy Server**, and enter details of your Proxy Server (this will be the same as your Browser configuration). For Port Number use **631**.

4 If necessary, click **Select Device Port** to view the available ports on the WPS870G, and select the appropriate port.

5 Click **Save**.

The AddPort window is displayed:



6 Either select an existing printer to use the new port and click **OK**, or

Click the **Add New Printer** button to create a new printer to use the IPP port. This will start the Add Printer wizard. Follow the prompts to complete the process. Ensure that the new printer uses the IPP port.

Installation is now complete. To create additional IPP Ports, repeat the entire procedure.

Note: The Proxy Server and other options are set individually for each IPP Port.

IPP Client Setup – Windows 2000/XP

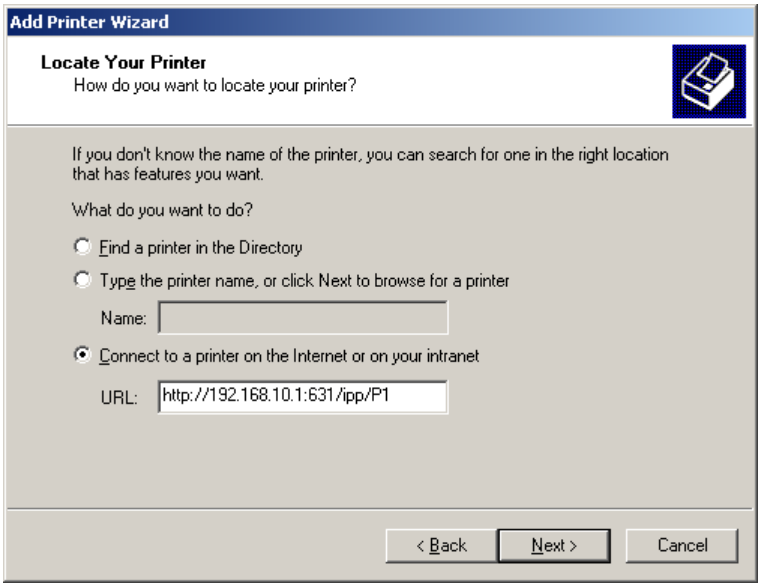
Windows 2000 and XP have their own IPP Client so there is no need to install the supplied IPP Client software. If using a router, you need to configure it to forward port 631 to the WPS870G.

To use the Windows IPP Client with the WPS870G:

1 Start the Add Printer wizard by clicking **Start** > **Settings** > **Printers**.

2 Select **Network Printer** and click **Next**.

The Locate your Printer window is displayed:


Add Printer Wizard
Locate Your Printer
How do you want to locate your printer?
If you don't know the name of the printer, you can search for one in the right location that has features you want.
What do you want to do?
Find a printer in the Directory
Type the printer name, or click Next to browse for a printer
Name:
Connect to a printer on the Internet or on your intranet
URL:
http://192.168.10.1:631/ipp/P1
< Back
Next >
Cancel

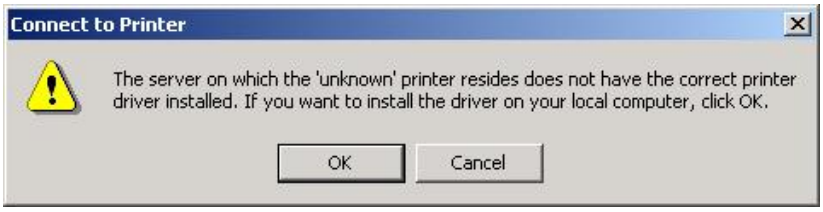
3 Select **Connect to a printer on the Internet or on your intranet** and enter the URL of the WPS870G as follows:

`ip_address` represents the IP address of the IPP Server and 631 is the port number.

- **Port 1** (Parallel) ip_address:631/ipp/P1
- **Port 2** (USB) ip_address:631/ipp/P2

Note: These entries are case sensitive. They must be entered as shown, with "ipp" in lower case, and P1 and P2 in UPPER case.

If the connection can be established and the printer on that port is on-line, the Connect to Printer window is displayed to prompt you to install the printer driver.


Connect to Printer
The server on which the 'unknown' printer resides does not have the correct printer driver installed. If you want to install the driver on your local computer, click OK.
OK
Cancel

4 Click **OK** and then select the printer manufacturer and model that matches the printer connected to the port on the WPS870G.

5 Click **Next** and complete the Wizard.

The IPP printer is now ready for use.

Changing the IPP Port Settings

After the IPP port is created, you can access the Configure IPP Port window using the Windows Port Settings button:

1 Open the Printers folder by clicking **Start** > **Settings** > **Printers**.

2 Right-click the IPP Printer and select **Properties**.

3 Locate and click **Port Settings** (Details or Port tab, depending on your version of Windows). There are 2 settings - Retry Interval and Retry Count – which can be adjusted if you have problems connecting to the IPP Server.

   – **Retry Interval** sets the time interval (in seconds) between connection attempts. Increase this number if you have a poor connection or the remote server is very busy.

   – **Retry Count** sets how many connection attempts will be made. Increase this number if you have a poor connection or the remote server is very busy.

Using IPP Printers

The IPP Printer functions like any other Windows printer. When printing from an application, select the IPP Printer.

If the IPP Server is not on your network, your Internet connection needs to be active.

If using the supplied IPP Client software, you can use the Query IPP Printer program installed with Add IPP Port to check the availability of the remote IPP Server.

An IPP Server may be unavailable for any of the following reasons:

- It is powered off.
- A printer problem has caused the IPP Server to cease responding, and a restart (reboot) is required.
- The Server's IP address has changed.
- The Internet connection for the IPP Server is down.
- Network congestion causes the connection attempt to time out.

If using the supplied IPP Client software, there are two settings - Retry Interval and Retry Count - which can be adjusted if you have problems connecting to the IPP Server.

See Changing the IPP Port Settings for details.

Section 7: Troubleshooting

This section describes some situations that may arise and the solutions to them.

Contact Information

If you encounter printing difficulties, please refer to the appropriate section. If, after following the advice below and the Wireless Print Server still does not function properly, please access our website at http://www.motorola.com/broadband/consumers for the latest information.

You can also reach us 7 days a week, 24 hours a day at 1-877-466-8646.

Hardware and LAN Solutions

All of the Wireless Print Server's LEDs are off.

Check the power supply or power connection.

The Wireless Print Server unit cannot be found on the LAN, so configuration is not possible.

If using the Wireless Interface to access:

- Temporarily disable WEP on your other Wireless stations.
- If using "Ad-Hoc" mode, it is not possible for Wireless stations to connect to the Wireless Print Server, because its default mode is "Infrastructure". You must use the wired interface for initial configuration.
- If using "Infrastructure" mode, verify that the SSID of the WPS870G matches your Access Point's SSID.
- The Access Point itself has a blank (null) SSID.
- If there is a setting "Broadcast SSID" or "Allow SSID of ANY", this setting should be enabled.

If using the Wired 10/100BaseT interface to access:

- Check the Hub/Router/Switch. The link LED for the port to which the Wireless Print Server is connected should be On. If it is Off, there may be a problem in the network cable.
- On the Wireless Print Server, check the LAN LED. If the LED is not On, the network connection is not working.

If using TCP/IP:

- Ensure that there are no routers between the Wireless Print Server and the computer used for configuration.

- Ensure that the computer used for configuration has the TCP/IP network protocol installed. Test its network connection by seeing if you can locate other LAN devices from the computer. (For example, Use *Network Neighborhood* and try to browse the network.)

Note: you must power off the Wireless Print Server before connecting or disconnecting the LAN cable when switching between wireless and wired interfaces.

I am using DHCP and there is an IP Address conflict involving the Wireless Print Server.

If the Wireless Print Server is left on, but the DHCP server is turned off, the Wireless Print Server will retain its IP address without the DHCP Server being aware of it. Simply reset the Wireless Print Server so it obtains a new IP address.

This problem also occurs if you assigned a static IP address that is within the range used by the DHCP server. If so, use another address that is NOT within the range used by the DHCP server.

I use a router and had to restart it. Now I can't print.

Re-power the Wireless Print Server until it re-associates with the router. If you still cannot print, run the Installation Wizard again to configure the Print Server.

How do I change the Domain name?

If you need to select another Domain for the Wireless Print Server, re-run the Installation Wizard.

AppleTalk (Macintosh) Solutions

Why do I get an incorrect printout?

Some possible reasons are:

- You may have chosen Binary encoding to print the file. Try using ASCII encoding.
- Some of the fonts in your print file may not be supported by the printer. Try selecting LaserWriter 7 instead of LaserWriter 8.

Can't find the Wireless Print Server's name in the Chooser.

Try the following:

- Make sure that AppleTalk is on (the button next to Active is highlighted in the Chooser).
- Make sure the printer has been on and in the READY state for a few minutes.
- Make sure the printer has not been renamed since its last appearance in the Chooser.
- If the printer resides on a network with multiple zones, make sure the correct zone is selected from the AppleTalk Zones box in the Chooser.

My EPS file does not print with the correct fonts.

This is a problem that occurs in some application programs. Try downloading the fonts contained in the EPS file before printing the saved EPS file.

I cannot select the "Remaining from:" item in the print dialog box.

If you have selected the Layout value, "2 Up," or "4 Up," you cannot access the *Remaining from* item. Choose other selections.

A cover page prints either on the first or the last page of the document.

Select one of these solutions:

- Turn the cover page feature off in your printer driver.
- Insert extra page breaks in your document to avoid the cover page printing on the first or last page of your document.

The colors on my printed output do not match the colors on my computer screen.

When the printer receives a color file, it tries to match the printed output color to the screen color. Sometimes the printer cannot match up the colors as closely as desired. To alleviate this problem, perform the following steps:

- Choose "Calibrated Color/Grayscale" in the *Print* pop-up menu in the *Print Options* dialog box. The printer makes adjustments to match the colors.
- Check your monitor to ensure all settings (for example, brightness) are adjusted correctly.
- Use calibration software, available from other vendors.

When I send a print job, I get a PostScript Command error or no printout.

Check the communication protocols. *The computer, Wireless Print Server, and printer must all be configured to the same communication protocol* (either Binary or ASCII).

To configure your system:

1. Choose which protocol you are going to use. You should check your printer as it may only use one certain protocol.
2. Set your printer to the desired protocol.
3. Use the computer's Print submenu to configure your computer to use the protocol you have chosen.
4. Configure the Wireless Print Server to use the same protocol as the printer and computer.

My printer doesn’t show up in the list of available printers during installation.

If you are using an USB-enabled print driver to connect your printer to the Wireless Print Server, you might need to download and use an Ethernet-enabled print driver. You will also need to use IP Printing (LPR) if you use an Ethernet print driver. See LPR Printing Setup.

Windows Printing Solutions

The Installation Wizard cannot detect my Print Server in Windows XP.

You may need to disable your built-in firewall in Windows XP.

You must be logged on to your computer with an administrator account in order to enable/disable the firewall. Follow the directions here: http://www.microsoft.com/windowsxp/home/using/howto/homenet/icf.asp

I cannot print in Windows XP.

You may need to disable your built-in firewall in Windows XP.

You must be logged on to your computer with an administrator account in order to enable/disable the firewall. Follow the directions here: http://www.microsoft.com/windowsxp/home/using/howto/homenet/icf.asp

It is suggested you use another firewall solution in this scenario, either with a hardware firewall or software firewall.

When I tried to install the Printing software for Peer-to-Peer printing, I received an error message and the installation aborted.

This may be caused by an existing installation of the printer port software. Before attempting another installation:

- Remove the existing installation
- Restart your computer

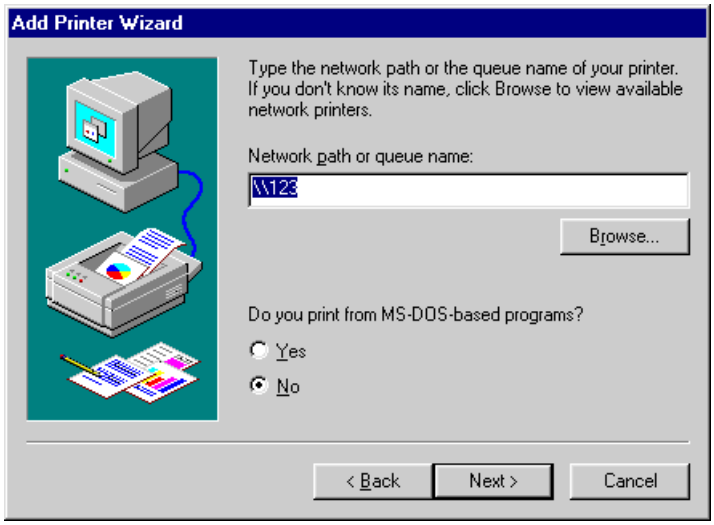
To remove an existing printer port installation:

1. Click **Start** > **Settings** > **Control Panel** > **Add/Remove Programs**.
2. Look for an entry with a name like "Shared Port", "Shared Printer Port", "Print Server Utility" or "Print Server Port".
3. Select this item, click **Add/Remove**, and confirm the deletion.

On Windows 98, I installed the Print Port Driver for Peer-to-Peer Printing, but when I selected a port on a Wireless Print Server and clicked "Add", the printer was not installed.

Try installing the Printer using the standard Windows tools, as follows:

1. Start the Add Printer Wizard by selecting **Start** > **Settings** > **Printers** > **Add Printer**.
2. Select **Network Printer** when prompted, "How is the printer attached to your Computer?" and click **Next**.

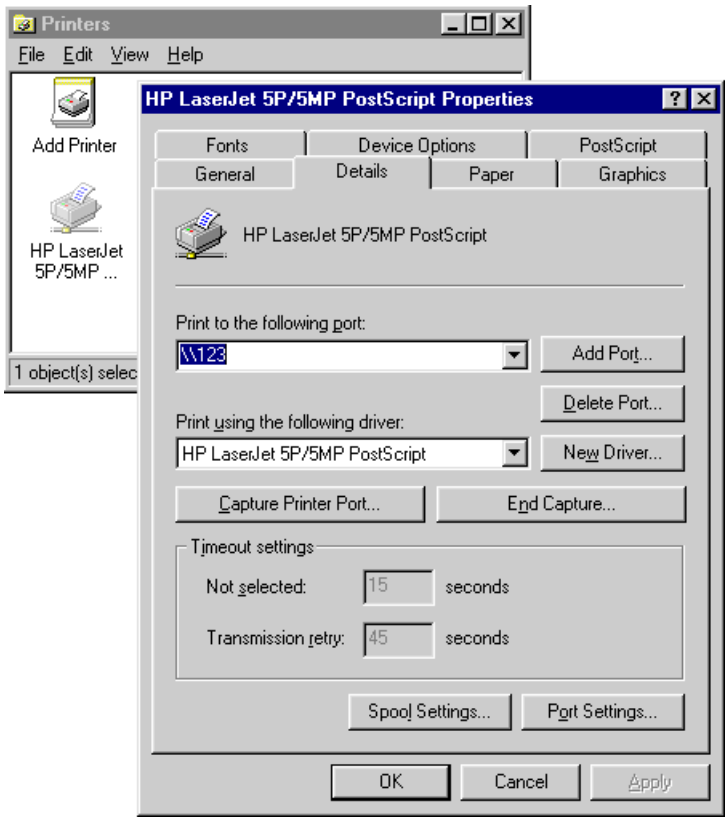

Add Printer Wizard
Type the network path or the queue name of your printer. If you don't know its name, click Browse to view available network printers.
Network path or queue name:
\\123
Browse...
Do you print from MS-DOS-based programs?
Yes
No
< Back
Next >
Cancel

3 Enter a dummy value such as shown for the “Network path or queue name.” Select **No** for "Do you print for MS-DOS programs?" and click **Next**.

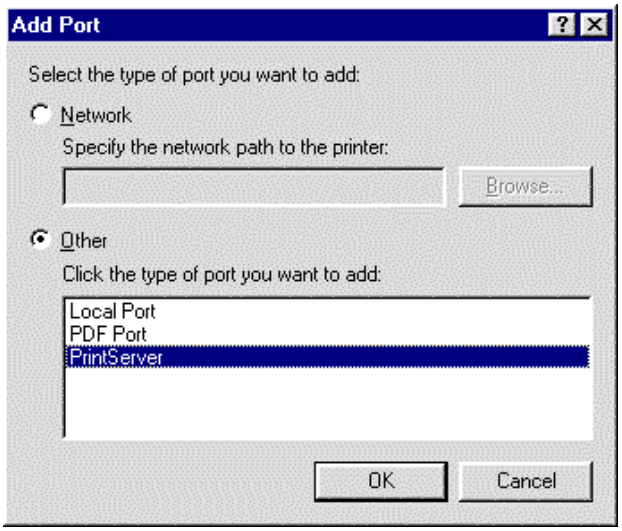
4 The printer wizard displays a message stating that "The Network Printer is off-line". This is OK. Continue the Add Printer Wizard until finished. If prompted about sharing the printer, do **not** enable Sharing.

5 Once finished, navigate to the Printers folder (**Start** > **Settings** > **Printers**). The printer icon will be grayed out indicating the printer is not ready.

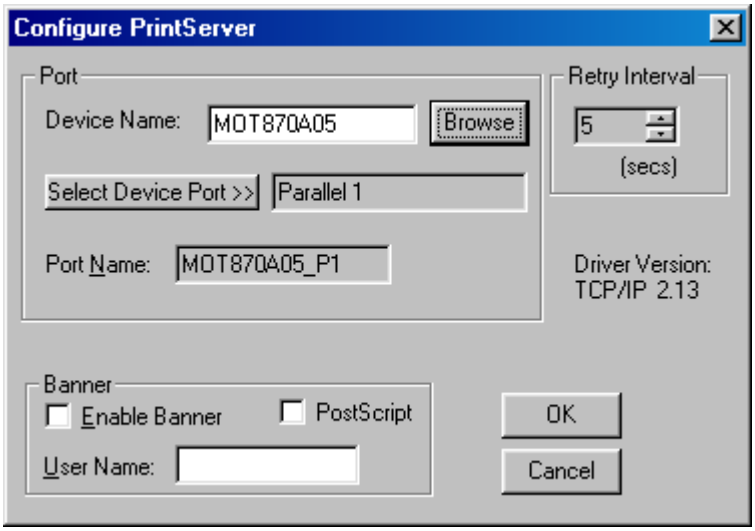
6 Right-click the Printer and select **Properties**, then the **Details** tab, as shown below.



7 Click **Add Port**. On the Add Port window, select **Other**, then **Printer Server**, as the port to add, as shown below.

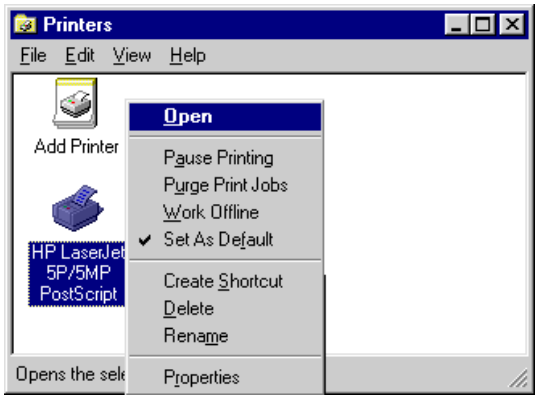


8 Click **OK**. The Configure PrintServer window is displayed:



9 Click **Browse**, select the desired Wireless Print Server, and click **OK**.

10 Click **OK** to return to the Printers folders and right-click on the Printer. Ensure that the "Work Offline" option is NOT checked.



The Printer should no longer be grayed out, and is ready for use.

Note: The windows shown above are from Windows 98. Other versions of Windows may look slightly different, but the process is identical.

Using Windows 2000/XP, I installed the printer using LPR as recommended, but I cannot print.

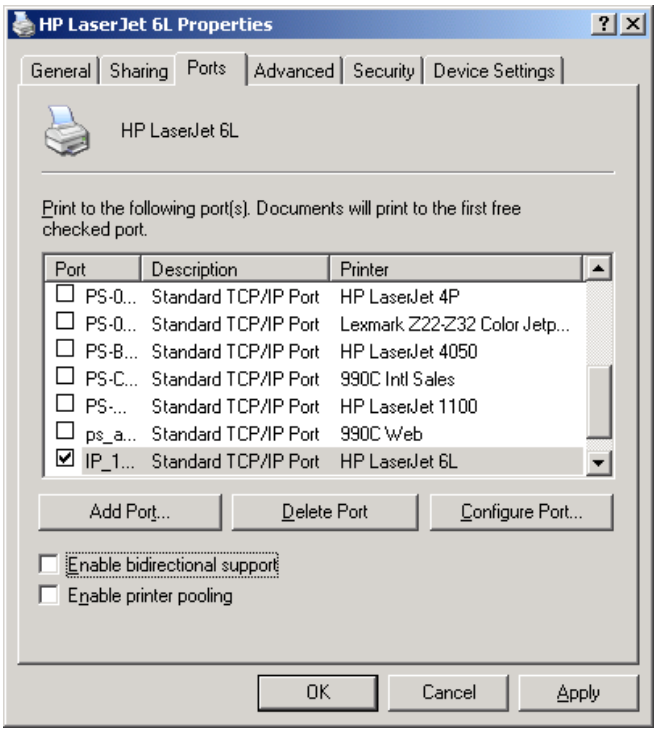
Check that the correct Printer driver is being used.

Try disabling the Bidirectional printing support, as follows:

1 Open the Printers folder by navigating **Start** > **Settings** > **Printers**.

2 Right-click on the ***Printer*** and select **Properties**.

3 Select the **Ports** tab.



4 Uncheck the **Enable bidirectional support** checkbox.

5 Click **OK**.

When printing from some software applications such as PowerPoint, it takes a long time and the printout is incorrect.

The problem is due to the printer, which is configured to **Start printing after the first page is spooled**. To change this setting:

1 Navigate to **Start** > **Settings** > **Printers** and click and highlight your printer.

2 From the menu, select **File** > **Properties** > and then the **Details** or **Advanced** tab, depending upon your version of Windows.

3 If necessary, click **Spool Settings**.

4 Select **Start printing after last page is spooled** and click **OK**.

How do I print to the Wireless Print Server's printer from an MS-DOS program?

You need to set the MS-DOS program to use LPT1 (parallel port 1) then "Capture" the output and re-direct it to the Wireless Print Server.

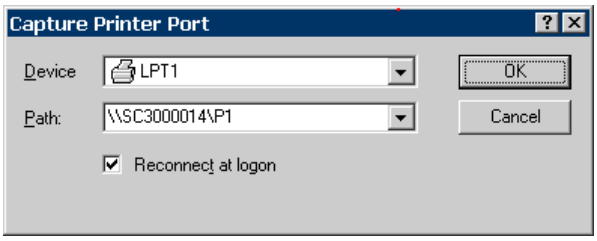
Windows 98SE/ME

1 Select **Start** > **Settings** > **Printers** to open the **Printers** folder.

2 Right-click the Wireless Print Server's ***Printer***, and select **Properties**.

3 On the **Details** tab, click **Capture**.

The Capture Printer Port window is displayed:



4 Select the Device, normally LPT1 (parallel port 1).

Enter or select the Path to the printer:

```
\\printer_name\P1
```

Where `printer_name` is the actual name of your printer. The `printer_name` is MOT appended with the last 7 digits of the device's MAC address (see the MAC label on the bottom of your device).

For example:

```
\\MOT3000014\P1
```

Select **Reconnect at logon**. If this is not done, the capture setting will be lost when Windows is restarted.

Windows 2000/XP

1 Login as Administrator.

2 Open the command prompt window by selecting **Start** > **Run** and typing **CMD** in the Open field.

3 Enter the following command:

```
net use lpt1 \\printer_name\P1 /persistent:yes
```

Where `printer_name` is the actual name of your printer. The `printer_name` is MOT appended with the last 7 digits of the device's MAC address (see the MAC label on the bottom of your device).

For example:

```
net use lpt1 \\MOT3000014\P1 /persistent:yes
```

and press **Enter**.

4 To terminate this capture, use the following command at the command prompt:

```
net use lpt1 /delete
```

and press **Enter**.

5 Type **exit** to close the window.

I have set up IPP Printing using my router but can no longer print.

If your ISP uses a DHCP server to assign you an IP address, it is likely that the IP address has changed. Reconfigure your IPP Printer Port to use the new IP address. See Section 6: Internet Printing Protocol (IPP) for details on how to configure.

Unix® Troubleshooting

Print Server is not recognized.

Check the following:

- The network cable is OK.
- There are no routers between the Print Server and the UNIX host during IP address assignment.
- There are no NetWare File Servers without TCP/IP support between the Print Server and the UNIX host.
- You have used the correct hardware address, as shown on a sticker on the base of the device.
- Use the ping command to see if the Print Server is a valid device on the network.

The Print Server's IP address is forgotten and it needs to be installed in a new environment.

Use the Restore button to restore the factory default settings, as described below, then configured as a new device. See Test Print and Restore Button for details on resetting it.

Appendix A: Specifications

General Specifications

Wireless Print Server WPS870G	
Power Consumption	5.5w max.
External Power Adapter	12V DC
LEDs	4
Parallel Port	1 Centronic female DB-25 connector
USB Port (1.1 & 2.0)	1
Ethernet Connector	10/100BaseT
FCC / CE	FCC, CE. Class B

Environmental Specifications	
Operating Temperature	0 ~ 40°C (32 ~ 104°F)
Storage Temperature	-10 ~ 70°C (14 ~ 158°F)
Shipping Temperature	-40 ~ 70°C (-40 ~ 158°F)
Operating Humidity	10 ~ 80%
Storage Humidity	5 ~ 90%
Shipping Humidity	5 ~ 100%

Parallel Port Pin Assignments

Pin	Signal Name	Direction
1	- Strobe	To printer
2	+Data 0	To printer
3	+Data 1	To printer
4	+Data 2	To printer
5	+Data 3	To printer
6	+Data 4	To printer
7	+Data 5	To printer

Pin	Signal Name	Direction
8	+Data 6	To printer
9	+Data 7	To printer
10	- ACK	To Server
11	+ Busy	To Server
12	+ Paper End	To Server
13	+ Select	To Server
14	- Auto Feed	To printer
15	- Error	To Server
16	- Init	To printer
17	- Select In	To printer
18-25	GND	Ground

Protocol Support

Model	TCP/IP	NetBEUI	AppleTalk
WPS870G	√	√	√

Feature Support

Model	HTTP Setup	E-mail Printing	IPP Support	AutoIP
WPS870G	√	√	√	√

Appendix B: Windows Server Configuration

Windows NT 4.0 Server

If using Windows NT 4.0, Microsoft *TCP/IP Printing Support* must be installed.

- If it is already installed, add a TCP/IP Remote Printer, as described below.
- Otherwise, install TCP/IP printing support and then add a TCP/IP Remote Printer.

Adding TCP/IP Printing Support

1 Navigate to **Start** > **Settings** > **Control Panel** > **Network**.

2 Click the **Service** option and ensure that **Microsoft TCP/IP Printing** is enabled. If it is not enabled, select the **Add** option to enable it.

3 Reboot the computer to enable support.

Adding a TCP/IP Remote Printer

1 Navigate to **Start** > **Settings** > **Printer** and start the Add Printer wizard.

2 When prompted with “This printer will be managed by,” select **My Computer** and click **Next**.

3 Select **Add Port…**, then select **LPR Port** and click **New Port**.

4 In the “Name of Address of server providing LPD:” Dialog box, enter the ***Wireless Print Server's IP address***.

5 In the Name of printer or print queue on that server dialog box, enter the appropriate ***logical printer number*** (for example, L1) as previously configured on the Wireless Print Server.

By default, L1 is port 1, and L2 is port 2.

6 Click **OK**. When returned to the Printer Ports window, click **Close** install your printer driver as usual. See Section 2:Installation. When prompted whether or not the printer will be shared, select the **Sharing** radio button.

7 In the Shared dialog box, enter the ***shared printer name***. The shared name is how other users will see this printer.

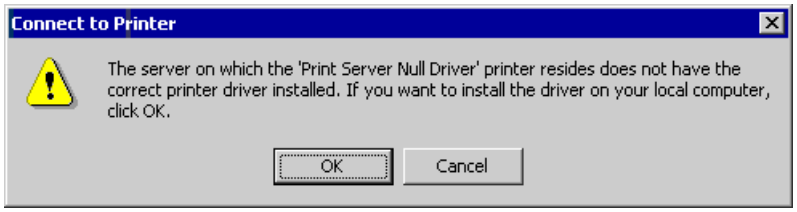
8 Click **OK** to save and exit. Client computers can now be configured as described in Section 2:Installation.

Windows 2000/2003 Server

1 Click **Start** > **Settings** > **Printer** and start the Add Printer wizard.

2 Select **Network Printer** then click **Next** to browse for the Wireless Print Server.

3 Locate and double-click the **Wireless Print Server**, select the desired port and click **Next**. The Connect to Printer message is displayed:


Connect to Printer
The server on which the 'Print Server Null Driver' printer resides does not have the correct printer driver installed. If you want to install the driver on your local computer, click OK.
OK
Cancel

Windows 2000 Message

Connect to Printer
The server for the 'Print Server Null Driver' printer does not have the correct printer driver installed. If you want to search for the proper driver, click OK. Otherwise, click Cancel and contact your network administrator or original equipment manufacturer for the correct printer driver.
OK
Cancel

Windows 2003 Message

4 Click **OK** and select the correct ***Manufacturer*** and ***Model*** for this printer.

5 Follow the prompts to complete the installation.

6 In the Printers folder, right-click the new printer, and select **Sharing**.

7 Select **Shared As:** and enter an appropriate ***name*** for this printer. Users will see this name when browsing for the printer during installation.

8 If desired, click **Additional Drivers** and install printer drivers for other versions of Windows, such as Windows 98. This will assist users during the installation process.

9 Click **OK** to close this Window. Configuration is now complete.

Client computers can now be configured as described in Section 2:Installation.

Appendix C: Unix Systems

Overview

Your Wireless Print Server supports the LPD Unix printing method, which is supported by all common Unix systems.

You must configure both the Wireless Print Server itself and your Unix system, as described in the following sections.

Wireless Print Server IP Address Configuration

Because it supports dynamic IP address allocation using DHCP or BOOTP, the Wireless Print Server ships with an IP address of 0.0.0.0. This is NOT a valid IP address.

Therefore, you must do ONE of the following:

- Check your **DHCP server** (if you have one), and determine the IP address allocated to the Wireless Print Server.
- Configure your **BOOTP Server** (if you have one), to provide an IP address to the Wireless Print Server, then restart the Wireless Print Server.
- Use a Windows platform and run the **Setup Wizard** utility to allocate a valid IP address to the Wireless Print Server.
- Add an entry to the **`arp`** table to associate the hardware address of the Wireless Print Server with the desired IP address, as follows:

  ```
  arp -s IP_Address 00:c0:02:xx:xx:xx
  ```

  Where:
  `IP_Address` is the IP address you wish to assign to the Wireless Print Server.
  `00:c0:02:xx:xx:xx` is the hardware address of the Wireless Print Server.

  Example

  ```
  arp -s  192.168.0.21  00:c0:02:12:34:56
  ```

  You should then assign this IP address to the Wireless Print Server using your Web browser, as described in IP Assignment.

Note: The hardware address of the Wireless Print Server is shown on a sticker on the base of the device.

LPD Configuration

Configuration for the most common platforms is described below.

LPD on IBM AIX 4.15

Before proceeding, ensure that the Wireless Print Server has been assigned an IP address. To setup your AIX system for LPD printing, perform the following steps.

1 Add the Wireless Print Server to **/etc/hosts.lpd**, using the name you assigned to the Wireless Print Server.

2 Start the LPD daemon if it is not running, using the following command:

```
start src -s qdaemon
```

3 Start the system administration tool **smit** and select **Print Spooling**.

4 Create the required number of queues (one for each logical printer) by selecting:

- Add a Print Queue
- Remote (Printer attached to Remote Host)
- Standard Processing

5 Use the following information:

Field	Entry
Name of queue to add	Use a single-word queue name, which indicates which printer is attached.
Hostname for remote server	Wireless Print Server name as used in /etc/hosts.lpd.
Name of queue on remote server	Logical printer number (for example, L1) to service this queue.
Type of print spooler on remote server	Use default value. (AIX Version xxx)

6 Ensure that the logical printers are configured in the Wireless Print Server.

7 Print using the following command:

```
lp -d printer_queue file_name
```

Where *printer_queue* is one of the entries used in *Name of queue to add*.
file_name is the file you wish to print.

LPD on System V

Before beginning LPD Setup, ensure that an IP address has been assigned to the Wireless Print Server. Keep the following points in mind:

- The **remote host name** is the name of the Wireless Print Server.
- The **remote printer name** is the print queue name for the Logical Printer. Logical printers also need to be configured on the Wireless Print Server itself.
- If your UNIX asks for the LPD type, be sure to identify the service type as BSD. The Wireless Print Server's LPD protocol meets BSD system standards.
- In the sample commands shown, *printer_name* is the name of the Print Queue serviced by the Wireless Print Server, and *Spooler_directory* is the name of the directory, which is used to spool the print jobs.

Procedure Table

Action	Sample Command
Stop Print Services	/usr/lib/lpshut
Add a System Printer	/usr/lib/lpadmin -p *printer_name* -v /dev/null
Restart the Print Services	/usr/lib/lpsched
Enable printing to the new printer device	enable *printer_name*
Start accepting jobs for the new printer device	accept *printer_name*
Create a spooling directory	mkdir /usr/spool/*Spooler_directory*
Make spooling daemon the owner of this directory	chown daemon */usr/spool/Spooler_directory*
Create read/write permissions	chmod 775 */usr/spool/Spooler_directory*
Give permissions to LPD processes.	chgrp daemon */usr/spool/Spooler_directory*
Add remote printer(s)	See following section

Adding Remote Printers

A remote printer is added by inserting the following line in the /etc/printcap file.

Note: The entry is really one line, but can be entered as shown. Use a TAB character where shown.

```
Printer_name|Remote_Printer_Alias:\
[TAB] :lp=:\
[TAB] :rm=PS_NAME:\
[TAB] :rp=Logical_Printer_name:\
[TAB] :sd=Spooler_directory:\
[TAB] :mx#0:
```

Where:

Printer_name is the Print Queue name used to store jobs for the corresponding logical printer.
PS_NAME is the Wireless Print Server name defined in /etc/hosts.
Logical_Printer_name is the logical printer name on the Wireless Print Server (for example, L1).
Spooler_directory is the directory you created.

Example:

```
Marketing|RP1_PS123456:\
[TAB] :lp=:\
[TAB] :rm=PS_Rm203:\
[TAB] :rp=L1:\
[TAB] :sd=/usr/spool/Marketing:\
[TAB] :mx#0:
```

Repeat this process for each Logical Printer/Print Queue combination that you wish to create.

LPD on Linux

If using the command line, the procedure is the same as for System V. (above)

On recent Linux distributions, you can use the graphical X-windows interface instead of the command line. The procedure is described below, but may vary according to your version of Linux.

1. Start your X-windows shell.
2. Select **Control Panel**, then **Printer Configuration**.
3. Select **Add**. For the printer type, select **Remote Unix (lpd) Queue**.
4. Use the following data to complete the resulting dialog.

Field	Data
Name	Enter a name for this printer
Spool Directory	/var/spool/lpd/*name_of_printer*
File Limit	0 (no limit)
Remote Host	Name or IP address of Wireless Print Server for example, MOT000014 Note: host file entry is required to use the name instead of IP address
Remote Queue	L*n* Where *n* is the Logical Printer number By default, L1 is port 1, and L2 is port 2.

5 Save this data and exit the Printer Configuration. Configuration is now completed and the printer is now available for use.

LPD on BSD

Before continuing, ensure that an IP address has been assigned to the Wireless Print Server. Remember the following:

- The **remote host name** is the name of the Wireless Print Server.
- The **remote printer name** is the logical printer (for example, L1) on the Wireless Print Server.
- If asked for the LPD type, enter the service type as BSD.
- In the sample commands shown, *printer_name* is the Print Queue serviced by the logical printer on the Wireless Print Server, and *Spooler_dir* is the name of the directory, which is used to spool the print jobs.

Procedure Table

Action	Sample Command
Create a spooling directory	mkdir /usr/spool/*Spooler_dir*
Set spooling daemon as owner of this directory	chown daemon */usr/spool/Spooler_dir*
Create read/write permissions	chmod 775 */usr/spool/Spooler_dir*
Give permissions to LPD processes	chgrp daemon */usr/spool/Spooler_dir*
Add remote printer(s)	See below
Start lcomputer print mechanism	lcomputer start *printer_name*

Adding Remote Printers

A remote printer is added by inserting the following line in the /etc/printcap file.

Note: The entry is really one line, but can be entered as shown. Use a TAB character where shown.

```
Printer_name|Remote_Printer_Alias:\
[TAB] :lp=:\
[TAB] :rm=PS_NAME:\
[TAB] :rp=Logical_Printer_name:\
[TAB] :sd=Spooler_directory:\
[TAB] :mx#0:
```

Where:

Printer_name is the Print Queue name used to store jobs for the corresponding logical printer.
PS_NAME is the Wireless Print Server name defined in /etc/hosts.
Logical_Printer_name is the logical printer name on the Wireless Print Server (for example, L1).
Spooler_directory is the directory created.

Example:

```
Marketing|RP1_PS123456:\
[TAB] :lp=:\
[TAB] :rm=PS_Rm203:\
[TAB] :rp=L1:\
[TAB] :sd=/usr/spool/Marketing:\
[TAB] :mx#0:
```

Repeat this process for each Logical Printer/Print Queue combination that you wish to create.

Printing using LPD

For LPD printing instructions, refer to your UNIX manual. The following example is for a BSD system:

```
lpr  -P printer_name filename
```

Where:
printer_name is the name of the Print Queue defined on the Unix host.
filename is the name of the file you wish to print.

Example:

```
lpr  -P Marketing  /etc/hosts
```

In the above example, the /etc/hosts file is sent to the printer queue Marketing. It will then be sent to the logical printer associated with this queue.

Appendix D: NetWare

Overview

- The Print Server must be configured as a valid device on your TCP/IP network. This printing method uses LPR over TCP/IP, not the Netware protocol.
- To use NDPS (Novell® Distributed Printing Services), the Novell server must be running Novell NetWare 5, and the computers (clients) must be running IntranetWare Client V2.2. or later.

The following procedure is designed to enable Public Access Printing under NDPS. Public Access Printing allows anybody on the network to access the printer.

Creating an NDPS Manager Object

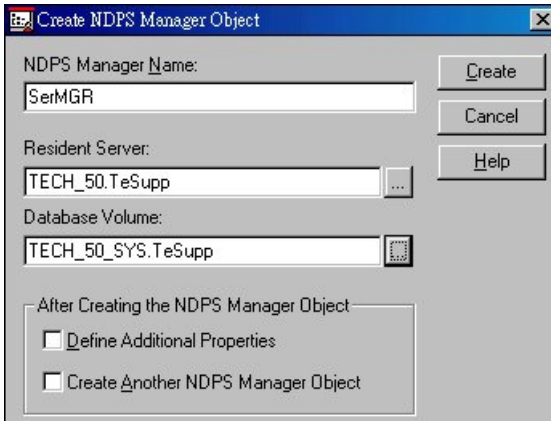
If an NDPS Manager Object already exists, skip this procedure and proceed to Creating an NDPS Printer Agent.

1 Login to NetWare 5.0 Server as Admin and start the NetWare Administrator program Nwadmn32.exe.

2 Select the container on NetWare Administrator where you want the NDPS Manager object to reside (for example, TeSupp).

3 Select **Create** > **Object** from the menu bar to view the New Object dialog.

4 Select NDPS Manager as the object to create. The Create NDPS Manager Object window is displayed:



5 Type a ***name*** in the NDPS Manager Name (for example, SerMGR in the window above).

6 Browse the Resident Server and select where you want the NDPS Manager object to be assigned (for example, TECH_50.TeSupp in window above).

7 Browse the Database Volume and select where you want the NDPS Manager database to be assigned (for example, TECH_50_SYS.TeSupp in the window above).

8 Click **Create**. The new NDPS Manager will appear in the main browser window.

Starting NDPS

- To start the NDPS Manager, enter the following command at the console:

  ```
  LOAD NDPSM
  ```

  then select the NDPS Manager object.

- To start the NDPS Manager whenever you bring up the server, add a command similar to the following to your server's AUTOEXEC.NCF file:

  ```
  LOAD  NDPSM  SerMGR.TeSupp
  ```

  The last item is the name of the NDPS Manager object you want to load.

After creating an NDPS Manager, you can create NDPS printers by using NetWare Administrator, as explained below.

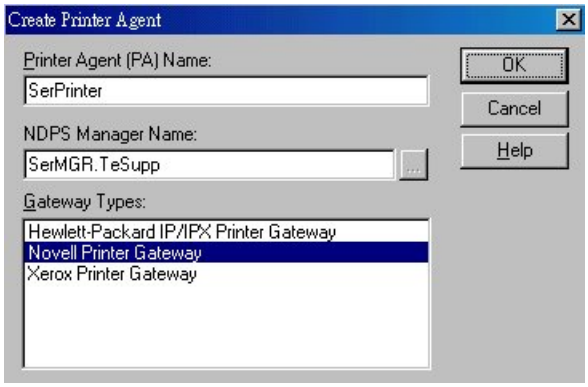
Creating an NDPS Printer Agent

To create Public Access Printers using the NDPS Manager Object in NetWare Administrator, follow this procedure:

1 Start the NDPS Manager object you will be using to control the Printer Agent.

2 At the Identification page, click the **Printer Agent List**.

3 Click **New** to display the Create Printer Agent window:



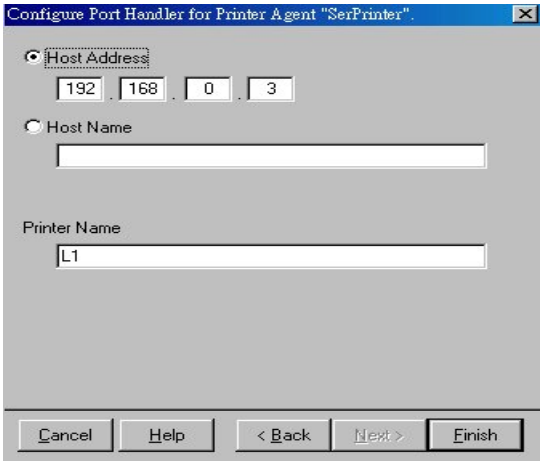
4 Enter the desired ***name*** for the Printer Agent (PA) Name. Normally, the NDPS Manager will be the NDPS Manger object you are using.

5 Select **Novell Printer Gateway** in the Gateway Type (see above).

6 Click **OK** and then select the available printer.

7 Select **Remote (LPR on IP)** in the Connection Type.

8 Click **Next** to display the Configure Port Handler window.



9 In the Host address IP field, enter the ***IP Address*** previously assigned to the Print Server device.

10 In the Printer Name field, enter the ***Logical Port name*** on the Print Server (L1 for port 1, L2 for port 2).

11 Click **Finish** then select appropriate drivers for appropriate versions of Windows as required.

12 The new Printer Agent will now appear in the Printer Agent List window.

Repeat this procedure for any other ports on the Print Server, or for any other logical printers you want to use.

Client computers can now be configured as described in Section 2:Installation.

Glossary

A

Access Point (AP)

A device that provides wireless LAN connectivity to wireless clients (stations).

Adapter

A device or card that connects a computer, printer, or other peripheral device to the network or to some other device. A wireless adapter connects a computer to the wireless LAN.

Address Translation

See *NAT*.

Ad-Hoc Network

A temporary local area network connecting AP clients together, usually just for the duration of the communication session. The clients communicate directly to each other and not through an established network, such as through a router. Also known as: IBSS (Independent Basic Service Set). See Infrastructure Network for further details.

ASCII

The American Standard Code for Information Interchange refers to alphanumeric data for processing and communication compatibility among various devices; normally used for asynchronous transmission.

B

Bandwidth

The transmission capacity of a medium in terms of a range of frequencies. Greater bandwidth indicates the ability to transmit more data over a given period of time.

bps

Bits Per Second.

Broadband

A communications medium that can transmit a relatively large amount of data in a given time period.

BSS

Basic Service Set. A configuration of Access Points that communicate with each other without resorting any infrastructure. Also known as Ad-Hoc networks. Also see *ESS*.

C

Channel

The part of the wireless spectrum you use when transmitting or receiving wirelessly. Hint: Channel 1 can be a poor choice since it is close to the frequency used by cordless phones.

Client

In a client/server architecture, a client is a computer that requests files or services such as file transfer, remote login, or printing from the server. On an IEEE 802.11b/g wireless LAN, a client is any host that can communicate with the access point. Also called a CPE. A wireless client is also called a “station.” Also see *server.*

Coaxial Cable

A type of cable consisting of a center wire surrounded by insulation and a grounded shield of braided wire. The shield minimizes electrical and radio frequency interference. Coaxial cable has high bandwidth and can support transmission over long distances.

CPE

Customer Premise Equipment: typically computers, printers, etc, that are connected to the gateway at the subscriber location. CPE can be provided by the subscriber or the cable service provider. Also called a client.

Crossover Cable

A crossover cable is a cable that is used to interconnect two computers by "crossing over" (reversing) their respective pin contacts. A crossover cable is sometimes known as a null modem.

D

DDNS

Dynamic Domain Name System enables you to assign a fixed host and domain name to a dynamic Internet IP address. It is used when you are hosting your own web server, FTP server, or another server behind the router.

Default Gateway

A routing device that forwards traffic not destined to a station within the local subnet.

DHCP

A Dynamic Host Configuration Protocol server dynamically assigns IP addresses to client hosts on an IP network. DHCP eliminates the need to manually assign static IP addresses by "leasing" an IP address and subnet mask to each client. It enables the automatic reuse of unused IP addresses:

- A DHCP server at the system headend assigns a public IP address to a router.
- Routers contain a built-in DHCP server that assigns private IP addresses to clients.

DMZ

De**M**ilitarized **Z**one. This service opens one IP address to the Internet, usually for online gaming, and acts as a buffer between the Internet and your network.

DNS

The Domain Name System is the Internet system for converting domain names (like www.motorola.com) to IP addresses. A DNS server contains a table matching domain names such as Internetname.com to IP addresses such as 192.169.9.1. When you access the world-wide web, a DNS server translates the URL displayed on the browser to the destination website IP address. The DNS lookup table is a distributed Internet database; no one DNS server lists all domain name to IP address matches.

Domain Name

A unique name, such as motorola.com, that maps to an IP address. Domain names are typically much easier to remember than are IP addresses. See *DNS.*

Download

To copy a file from one computer to another. You can use the Internet to download files from a server to a computer.

Driver

Software that enables a computer to interact with a network or other device. For example, there are drivers for printers, monitors, graphics adapters, modems, Ethernet, USB, HPNA, and many others.

DSL

Digital Subscriber Line.

DSSS

Direct-Sequence Spread Spectrum. DSSS is a transmission technology used in WLAN transmissions where a data signal at the sending station is combined with a higher data rate bit sequence, or chipping code, that divides the user data according

to a spreading ratio. The chipping code is a redundant bit pattern for each bit that is transmitted, which increases the signal's resistance to interference. If one or more bits in the pattern are damaged during transmission, the original data can be recovered due to the redundancy of the transmission.

Dynamic IP Address

An IP address that is temporarily leased to a host by a DHCP server. The opposite of *Static IP Address*.

E

ESS

An Extended Service Set (ESS) is a set of two or more BSSs that form a single subnetwork. See also *BSS*.

Ethernet

The most widely used LAN type, also known as IEEE 802.3. The most common Ethernet networks are 10Base-T, which provide transmission speeds up to 10 Mbps, usually over unshielded, twisted-pair wire terminated with RJ-45 connectors. Fast Ethernet (100Base-T) provides speeds up to 100 Mbps. “Base” means “baseband technology” and “T” means “twisted pair cable.”’

Each Ethernet port has a physical address called the MAC address. Also see *MAC address*.

Event

A message generated by a device to inform an operator or the network management system that something has occurred.

F

Firewall

A security software system on a router that enforces an access control policy between the Internet and the LAN for protection.

Firmware

Code written onto read-only memory (ROM) or programmable read-only memory (PROM). Once firmware has been written onto the ROM or PROM, it is retained even when the device is turned off. Firmware is upgradeable.

FTP

File Transfer Protocol is a standard Internet protocol for exchanging files between computers. FTP is commonly used to download programs and other files to a computer from web pages on Internet servers.

G

Gateway

A device that enables communication between networks using different protocols. See also *router*.

GUI

Graphical User Interface

H

Hexadecimal

A base-sixteen numbering system that uses sixteen sequential numbers (0 to 9 and the letters A to F) as base units before adding a new position. On computers, hexadecimal is a convenient way to express binary numbers.

Host

In IP, a host is any computer supporting end-user applications or services with full two-way network access. Each host has a unique host number that combined with the network number forms its IP address.

Host also can mean:

- A computer running a web server that serves pages for one or more web sites belonging to organization(s) or individuals
- A company that provides this service
- In IBM environments, a mainframe computer

I

ICMP

Internet Control Message Protocol is a protocol used for error, problem, and informational messages sent between IP hosts and gateways. ICMP messages are processed by the IP software and are not usually apparent to the end-user.

IEEE

The Institute of Electrical and Electronics Engineers, Inc. (http://www.ieee.org) is an organization that produces standards, technical papers, and symposiums for the electrical and electronic industries and is accredited by ANSI. 802.11b and 802.11g are examples of standards they have produced.

Infrastructure network

Describes a wireless network that is governed by a wireless router to one or more access points, as opposed to an Ad-Hoc network that uses no central management device. Also see Ad-Hoc network for further details.

Internet

A worldwide collection of interconnected networks using TCP/IP.

IP

Internet Protocol is a set of standards that enable different types of computers to communicate with one another and exchange data through the Internet. IP provides the appearance of a single, seamless communication system and makes the Internet a virtual network.

IP Address

A unique 32-bit value that identifies each host on a TCP/IP network. TCP/IP networks route messages based on the destination IP address.

For a Class C network, the first 24 bits are the network address and the final 8 bits are the host address; in dotted-decimal format it appears “network.network.network.host.”

ISDN

Integrated Services Digital Network

ISP

Internet Service Provider

L

LAN

Local Area Network. A local area network provides a full-time, high-bandwidth connection over a limited area such as a home, building, or campus. Ethernet is the most widely used LAN standard.

M

MAC Address

The Media Access Control address is a unique, 48-bit value permanently saved in the ROM at the factory to identify each Ethernet network device. It is expressed as a sequence of 12 hexadecimal digits printed on the unit’s label. Also called an Ethernet address, physical address, hardware address, or NIC address.

MB

One megabyte; equals 1,024 x 1,024 bytes, 1,024 kilobytes, or about 8 million bits.

Mbps

Million bits per second (megabits per second). A rate of data transfer.

MTU

The Maximum Transmission Unit is the largest amount of data that can be transmitted in one discrete message on a given physical network. The MTU places an upper bound limit on the size of a message that can be transferred by the network in a single frame. Messages exceeding the MTU must be fragmented before transmission, and reassembled at the destination.

Multicast

A data transmission sent from one sender to multiple receivers. See also broadcast and unicast.

N

NAT

Network Address Translation is an Internet standard for a LAN to use one set of IP addresses for internal traffic and a second set of IP addresses for external traffic. NAT provides some security because the IP addresses of LAN computers are invisible on the Internet.

Network

Two or more computers connected to communicate with each other. Networks have traditionally been connected using some kind of wiring.

NIC

A Network Interface Card converts computer data to serial data in a packet format that it sends over the LAN. A NIC is installed in an expansion slot or can be built-in. Every Ethernet NIC has a MAC address permanently saved in its ROM.

P

Packet

The unit of data that is routed between the sender and destination on the Internet or other packet-switched network.

PCMCIA

The Personal Computer Memory Card International Association sets international standards for connecting peripherals to portable computers. Laptop computers typically have a PCMCIA slot that can hold one or two PC Cards to provide features such as Ethernet connectivity.

PING

A network utility that tests host reachability by sending a small packet to the host and waiting for a reply. If you PING a computer IP address and receive a reply, you know the computer is

reachable over the network. It also stands for “Packet InterNet Groper.”

Port Triggering

A mechanism that allows incoming communication with specified applications.

PPP

Point-to-Point Protocol is used to transport other protocols, typically for simple links over serial lines. It is most commonly used to access the Internet with a dial-up modem.

PPPoE

Point-to-Point Protocol over Ethernet. Used by many DSL Internet Service Providers for broadband connection.

PPTP

Point-to-Point Tunneling Protocol encapsulates other protocols. It is a new technology to create VPNs developed jointly by several vendors.

Print Server

A device that connects a printer to a network and allows users to share the printer.

Private IP Address

An IP address assigned to a computer on a LAN by the DHCP server for a specified lease time. Private IP addresses are invisible to devices on the Internet. See also *Public IP Address*.

Protocol

A formal set of rules and conventions for exchanging data. Different computer types (for example PC, UNIX, or mainframe) can communicate if they support common protocols.

Public IP Address

The IP address assigned to a router by the service provider. A public IP address is visible to devices on the Internet. See also *Private IP Address*.

R

RJ-11

The most common type of connector for household or office phones.

RJ-45

An 8-pin modular connector; the most common connector type for 10Base-T or 100Base-T Ethernet networks.

Roaming

The ability to transfer your wireless session from one AP to another AP seamlessly.

ROM

Read-Only Memory.

Router

On IP networks, a device connecting at least two networks, which may or may not be similar. A router is typically located at a gateway between networks. A router operates on OSI network Layer 3. It filters packets based on the IP address, examining the source and destination IP addresses to determine the best route to forward them.

A router is often included as part of a network switch. A router can also be implemented as software on a computer.

Routing Table

A table listing available routes that is used by a router to determine the best route for a packet.

RTS

Request To Send.

S

Server

In a client/server architecture, a dedicated computer that supplies files or services such as file transfer, remote login, or printing to clients. Also see *client.*

Service Provider

A company providing Internet connection services to subscribers.

SMTP

Simple Mail Transfer Protocol is a standard Internet protocol for transferring e-mail.

Static IP Address

An IP address that is permanently assigned to a host. Normally, a static IP address must be assigned manually. The opposite of *Dynamic IP Address*.

Station

IEEE 802.11b term for wireless client.

Subscriber

A user who accesses television, data, or other services from a service provider.

Subnet Mask

A methodology that determines what the router will examine for the destination of an IP address. A router delivers packets using the network address.

Switch

On an Ethernet network, a switch filters frames based on the MAC address, in a manner similar to a bridge. A switch is more advanced because it can connect more than two segments.

T

TCP

Transmission Control Protocol on OSI Transport Layer 4 provides reliable transport over the network for data transmitted using IP (network layer three). It is an end-to-end protocol defining rules and procedures for data exchange between hosts on top of connectionless IP. TCP uses a timer to track outstanding packets, checks error in incoming packets, and retransmits packets if requested.

TCP/IP

The Transmission Control Protocol/Internet Protocol suite provides standards and rules for data communication between networks on the Internet. It is the worldwide Internetworking standard and the basic communications protocol of the Internet.

Tunnel

To place packets inside other packets to send over a network. The protocol of the enclosing packet is understood by each endpoint, or tunnel interface, where the packet enters and exits the network. VPNs rely on tunneling to create a secure network.

Tunneling requires the following protocol types:

- A carrier protocol, such as TCP, used by the network that the data travels over
- An encapsulating protocol, such as IPSec, L2F, L2TP, or PPTP, that is wrapped around the original data
- A passenger protocol, such as IP, for the original data

U

UDP

User Datagram Protocol. A method used along with the IP to send data in the form of message units (datagram) between network devices over a LAN or WAN.

Unicast

A point-to-point data transmission sent from one sender to one receiver. This the normal way you access websites. See also *multicast*.

UPnP

Universal Plug and Play

USB

Universal Serial Bus is a computer interface for add-on devices such as printers, scanners, mice, modems, or keyboards. USB supports data transfer rates of 12 Mbps and plug-and-play installation. You can connect up to 127 devices to a single USB port.

V

VoIP

Voice over Internet Protocol is a method to exchange voice, fax, and other information over the Internet. Voice and fax have traditionally been carried over traditional telephone lines of the PSTN (Public Switched Telephone Network) using a dedicated circuit for each line. VoIP enables calls to travel as discrete data packets on shared lines. VoIP is an important part of the convergence of computers, telephones, and television into a single integrated information network.

VPN

A virtual private network is a private network that uses “virtual” connections (tunnels) routed over a public network (usually the Internet) to provide a secure and fast connection; usually to users working remotely at home or in small branch offices. A VPN connection provides security and performance similar to a dedicated link (for example, a leased line), but at much lower cost.

W

WAN

A wide-area network provides a connection over a large geographic area, such as a country or the whole world. The bandwidth depends on need and cost, but is usually much lower than for a LAN.

WAP

Wireless Access Point or Wireless Access Protocol. See also *Access Point*.

WEP

Wired Equivalent Privacy encryption protects the privacy of data transmitted over a wireless LAN. WEP uses keys to encrypt and decrypt transmitted data. The access point must authenticate a client before it can transfer data to another client. WEP is part of IEEE 802.11b.

Wi-Fi®

Wireless fidelity (pronounced why'-fy) brand name applied to products supporting IEEE 802.11b/g.

WLAN

Wireless LAN.

WPA

Wi-Fi Protected Access. A security regimen developed by IEEE for protection of data on a WLAN.

WWW

World Wide Web. An interface to the Internet that you use to navigate and hyperlink to information.

Visit our website at :

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